PS
THE PREVENTIVE MAINTENANCE MONTHLY
JUNE 1951 ★★★★★ VOLUME 1 NUMBER 1
WILL EISNER

UNITED STATES ARMY
THE CHIEF OF STAFF

20 March 1951

Dear Sir:

I am glad to see P.S. Magazine getting under way where ARMY MOTORS left off when we demoblized in 1945. You did a grand job then and I am sure you will again.

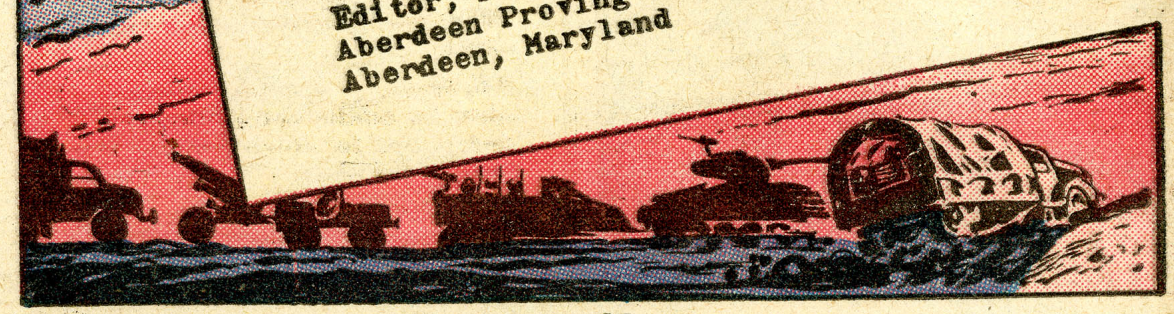
The modern Army of today must possess mobility -- and mobility depends to a large degree upon prompt efficient and continuing maintenance. Therefore, it is imperative that the men and women who operate and maintain our cars and trucks and tanks and other equipment are kept well informed on better maintenance.

If P.S. Magazine will help to accomplish this mission, it will perform a most valuable service in helping the Army achieve the high degree of ready mobility so essential to victory in modern war.

Sincerely yours,

J. Lawton Collins

Editor, P.S. Magazine
Aberdeen Proving Ground
Aberdeen, Maryland



Contents of P. S. Magazine first issue . . . JUNE 1951

IN THIS ISSUE

ARTICLES

Latest on the M46	8
11 Reasons Why Requisitions Go Wrong	24
Leaf-Spring Maintenance	30
Message To Motor Officers	34
Save Used Bearings	35
How To Stop A Jeep	36
New All-Purpose Grease	39
Use Your Trip Tickets	44
Take A Second Look at M34 Wheel Bearings	13

FEATURES

General Collins Letter	2C
The Echelon System	6
How To Load A Truck	14
Joe Dope Limerick	22
Between The Lines	43
Nine Maintenance Points	4C

DEPARTMENTS

Editorial	2
Connie Rodd	11
Combat Maintenance	3
Contributions	27
Sgt. Half-Mast	40

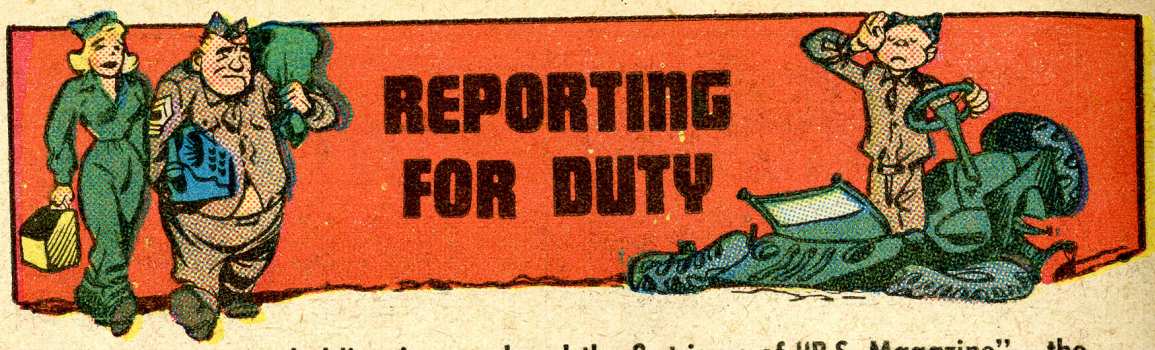
SERVICES

Motor Officers Mission	3C

P.S. MAGAZINE is published monthly in the interest of Preventive Maintenance for service-wide distribution to all organizations as part of the PREVENTIVE MAINTENANCE PROGRAM.

P.S. Magazine is glad to get your ideas for articles and illustrations, and is glad to answer your questions. Just write to:

Editor, P.S. Magazine
Aberdeen Proving Ground
Aberdeen, Maryland-USA



You are now holding in your hand the first issue of "P.S. Magazine"—the magazine of maintenance for trucks and tanks, the nuts-and-bolts digest for anything on wheels or tracks. If you were lucky enough to have worked with or operated vehicles in World War II, you will remember a little clambake called "Army Motors." "P.S." is the successor to "Army Motors," the magazine of fixes and facts, on trucks and tanks. Do you hear strange music in your transfer case? Are you ashamed to face the neighbors because your M46 tank makes little puddles of oil upon the ground? "P.S." will give you the answers, and what to do about it.

Not that we know all the answers! It's just that we are fixed to get you the answers. We are surrounded by people who designed your trucks and tanks and invented all the little gadgets that are on them. We have with us such old timers as Sgt. Half-Mast McCanick, the original answer man. Half-Mast is close enough to the manufacturers' engineers to spit on them. And often does. Send Half-Mast your maintenance problems, your truck and tank troubles. Anybody can write to Half-Mast, in channels or out. Be you high brass, or low brass, or no brass at all, Half-Mast will get you the answers.

Connie Rodd, gal mechanic, is with us too. Connie is the toothsome lass who operates the shop kinks, shortcuts, and cute tricks department. Connie's old man built the original body by Fisher and he didn't do so bad by her either. Connie is famous for her (ahem) internal combustion and for inviting your particular attention to those trouble spots, big and little, on your vehicles and what to do about them.

"P.S." has a "Contributions Dept." Have you dreamed up a special tool to make a hard job easier? Have you unscrewed the inscrutable, or worked out a faster or easier way to change a part or make an adjustment? Write the details to "P.S." MAGAZINE," Aberdeen Proving Ground, Md., we'll publish them and make life easier for the rest of the Army.

For your good ideas, for your questions to Half-Mast which reveal a situation that needs solvin', for any letter from you that uncovers a vehicular or organizational condition that needs correctin', you will receive direct-by-mail, ab-so-lutely free, a one-year personal subscription to "P.S. Magazine."

What else are we givin' away? We are giving away pages and pages of service information which may pull you out of a pinch, or even save your skin when the goin' gets tough. Send no $$$'s, "P.S." is free.

Look for us every month at your favorite motor pool, motor officer or motor sergeant.

The Editors

LESSONS FROM TWO WARS BY TANKMEN WHO WERE THERE.....AND CAME BACK.

KEEP MOVING IN SOFT STUFF

Sgt. H. Saul—Silver Star, Purple Heart

I saw something happen right as we drove off the LST and up the sandy beach into Italy. I was Section Chief, commanding an M10 Gun Motor Carriage in a Tank Destroyer outfit. The M10 in front of us had to stop suddenly to avoid running down a jeep that dashed in front of it. Right then, the M10 bogged down. It was following in the tracks of the tank in front. I mean it wasn't riding on the soft sand. But slowing down and stopping that 32 tons of tank bogged it right down. We had to finally pull our tank destroyer around in front and tow it out. Of course that was an accident. Just one of those things. But it shows how important it is to **keep moving along on sandy beaches. Once you stop, brother, you've bogged down.**

EVERY MAN FOR EVERY JOB

Something general you can tell the guys here. Every man in a motor-carriage crew, or tank for that matter, should try to learn every other man's job. When I was in North Africa I was a gunner on an M4. The tank commander got wounded and I took over and we kept going. Same thing in Italy. I was commander then. When we got around Mignano I got wounded and the driver took right over. The assistant driver did the driving. That's the way our crew worked, **every man knew every job in the destroyer.**

THE TANK'S YOUR HOME

Cpl. J. J. Smurda

Boy, if there's any feeling you get when you're in action, it's the feeling that your tail depends on your own tank. You get the feeling your tank's your home, your protection, your moving foxhole. And how we babied ours. You'll see what I mean . . . around Fondouk in Tunisia, you learned damn quick how important it is to keep your tank in the best shape. **I checked over the tank every chance I got. A little thing like a loose connector can be bad. You can throw a track because of it.** And that reminds me, **we learned to turn gradually, none of this spinning around on a dime stuff.** That's fun in training—but you never have to do it on the battlefield. You go along easy **The system we used to dodge Jerry was to pull up behind a small rise, straighten out and fire, pull forward, count five, and turn—whichever way the tank commander signalled you. Always keep toward the target.** It's like a bombardier and pilot setup in a plane. The driver has to search out the terrain that makes it easiest for the gunner. Course it ain't always easy. When you're attacking, you've got to take the leftovers in the terrain. The enemy already has the best spots, usually. But that's where a good driver comes in . . . he shows his stuff.

MORE NIGHT DRIVING

Pfc. A. G. Robson

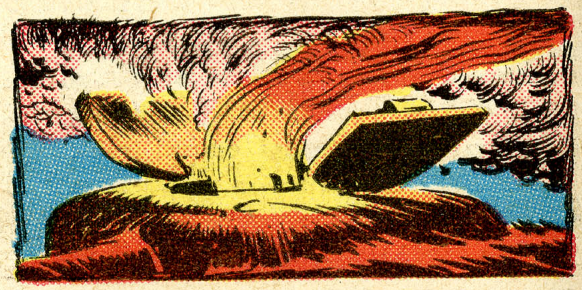
The first thing that stuck out to me was the amount of night driving we had to do overseas. All the time. Going around the windy mountain roads at night you had to be a regular cat, or it's too bad. Damn hard on your eyes, but with enough practice your eyes get used to driving at night. We did get enough practice—in Tunisia. **I think all men should get more practice in night driving.** I know we could have used more.

KEEP HULL FORWARD

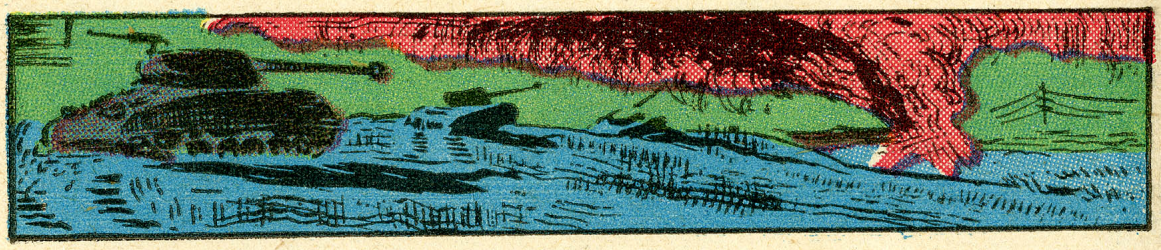
Tech. Sgt. O. J. Oliver—Silver Star, Purple Heart

First time I saw real action was in North Africa. Our tank regiment was up around Kasserine and things were flying. In one action, several of the tanks were maneuvering around and they put their tails to the enemy. Several of them got knocked out right then. **The tail armor's thin. The tank should be kept with the hull facing front. A smart tanker backs down and keeps the front of the hull facing the enemy.**

KEEP TANK CLEAN



I learned a good lesson up there . . . **to always keep the inside of the tank clean. The walls, the sponsons, the hull wiped dry of any grease. And don't keep any grease rags in the tank.** Throw 'em out. The outside can be dirty as hell, but the inside—keep it clean.

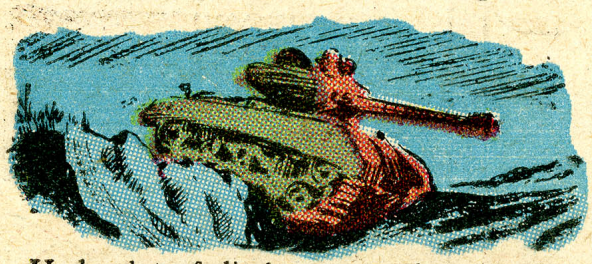


When you get a ricochet along the side, you know, the kind that takes a hunk of metal out, like a scoop of ice cream, it doesn't hurt anything. But it turns the metal around there white hot. If there's any grease on the inside wall, or any greasy rags resting up against that spot, they'll flare up and start a fire. Keep your tank clean all the time.

SLIDE? DO THIS...

Sgt. D. E. Doney

I was a driver of an M10 in Italy, and I'll tell you it was no snap job. Most of the time we were driving at night, on slopping wet roads. Didn't go across country much because we'd have got stuck. Had to stick to the roads. These tank destroyers are heavy and slide around a lot. Some drivers make them slide even more. **When you feel the tank start to slide, don't reach for the steering levers. It's natural ... but don't do it. It'll only make you slide more. Just let the tank go, and she'll probably catch herself and stop sliding, if you've still got forward speed.**



Had a lot of ditches to go through. It takes a little driving to get through some of them. **Before you go in, shift down to a lower gear. Ease your tank down gently till you're at the bottom then give it full power to climb out. Just as you come over the top edge and a little over half length of your tracks are out, ease up on the gas. If you give it the gun at that moment, it puts an extra-heavy load on your suspension and you're liable to spring the sprockets.**

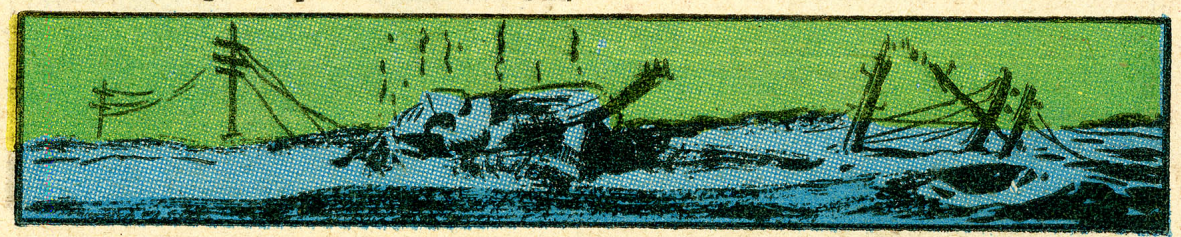
You ought to say something about radio equipment. It's important over there. **Be sure the radio operator turns the radio off when he's not using it.** One time ours was left on all night. Ran the battery all the way down. We had a hell-of-a-time. That reminds me, I got in trouble with my radio equipment. I disconnected the headphones the regular way, but.....

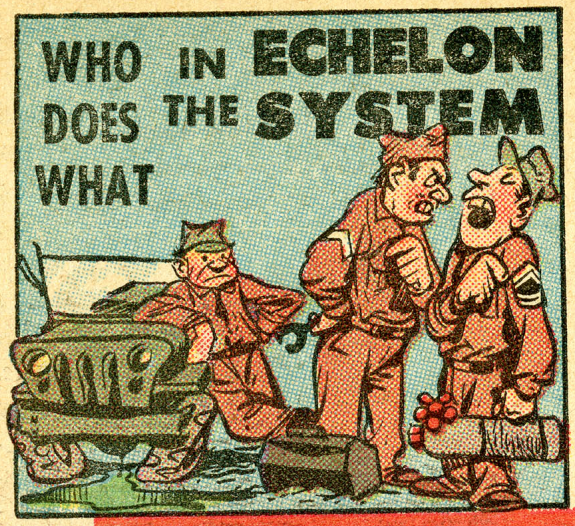
I left the plugs dangling around on the floor. Just got sloppy. When I got back in, **I stepped on the plug and smashed it. Then I didn't have any interphone or radio connection with the commander or the crew.** I was plain cut off. Those parts were hard to get, too.

WHAT IS YOUR COMBAT STORY?

A lot of guys who haven't yet seen action would like to hear about it . . . *SEND IT TO P.S.!*

Address P.S. Magazine, Aberdeen Proving Ground, Aberdeen, Md., and earn yourself a free personal subscription to P.S. Magazine.



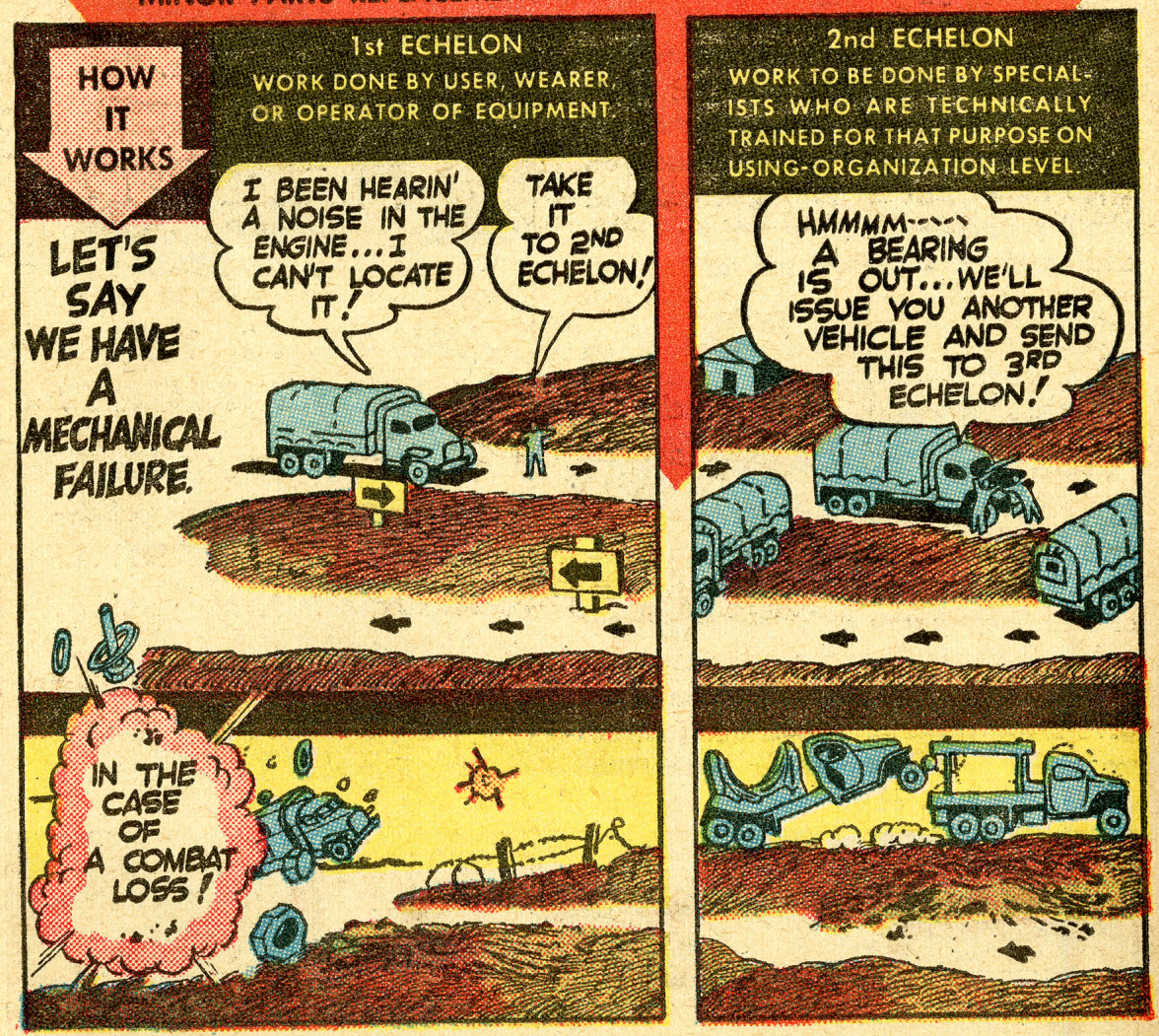


Up at the front where a high state of hysteria and emergency is the normal order of things, there's nothing like traveling light on maintenance equipment and responsibilities.

This is the reason for the echelon system of maintenance—and none of your lip, Murphy. The echelon system streamlines maintenance—what can't be done in a hurry up front is bucked on back where a more leisurely air prevails.

Army Regulations 750-5, dated 21 Feb. 1951, (basic law on military maintenance)

THIS IS ORGANIZATIONAL MAINTENANCE . . . RESPONSIBILITY OF USING ORGANIZATION ON ITS OWN EQUIPMENT: CLEANING, SERVICING, PRESERVING, LUBRICATING, ADJUSTING . . . MINOR PARTS REPLACEMENT IF NO SPECIAL SKILL IS NEEDED.



specifies five echelons for automotive maintenance. Each echelon is furnished certain parts, personnel, and equipment—and does all the work it can do within the limits of its parts, tools, personnel, time, and military situation.

All other work is passed back to the higher echelons.

Skills (personnel) are authorized on Tables of Organization.

Tools and equipment are authorized by Tables of Allowances, and, simplest of all, Tables of Equipment. (commonly known as T/O & E's)

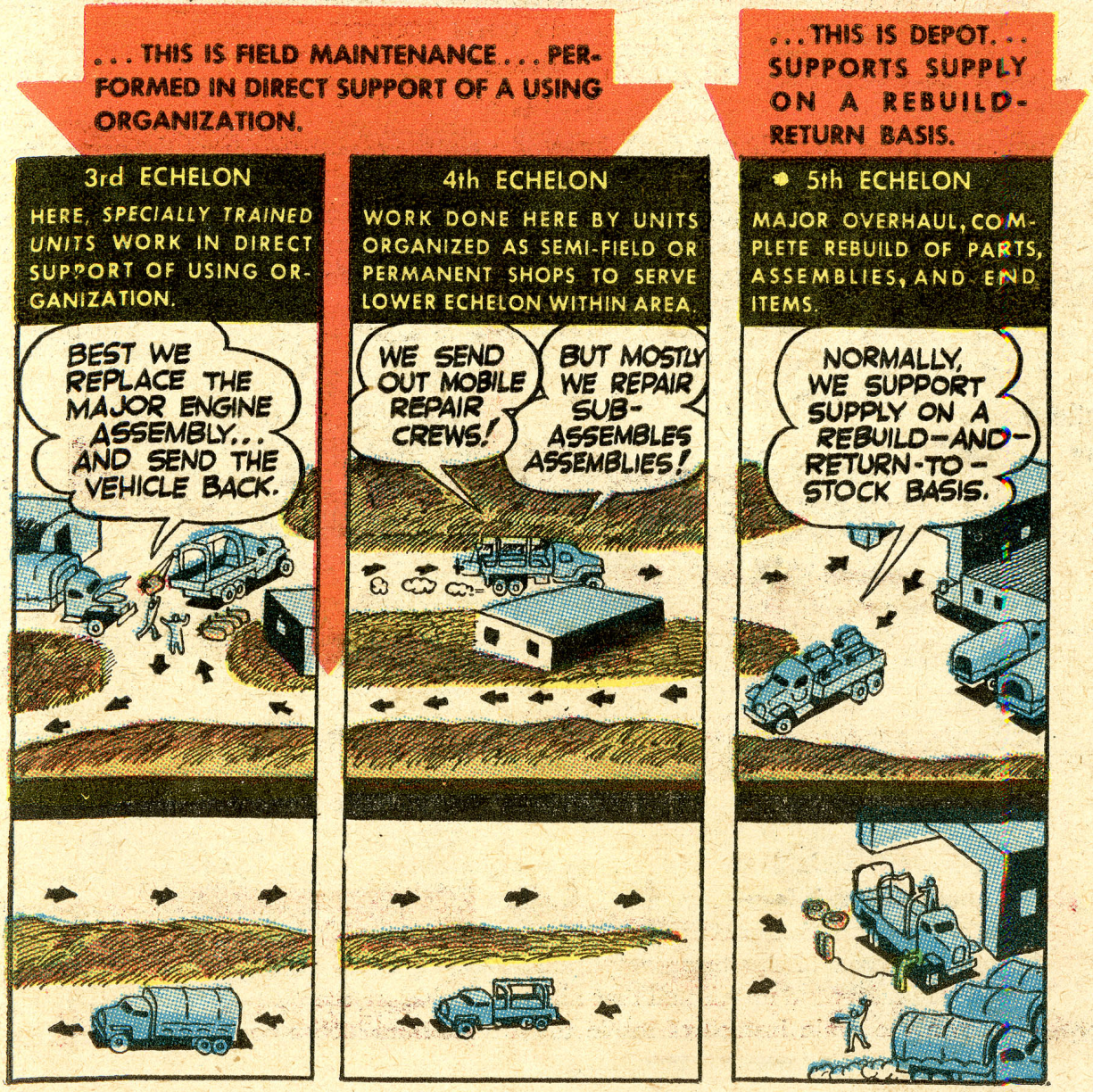
Parts are authorized in Ordnance SNL's (Standard Nomenclature Lists).

The "Military Situation" is a matter of opinion and you better judge for yourself unless you have orders from higher authority.

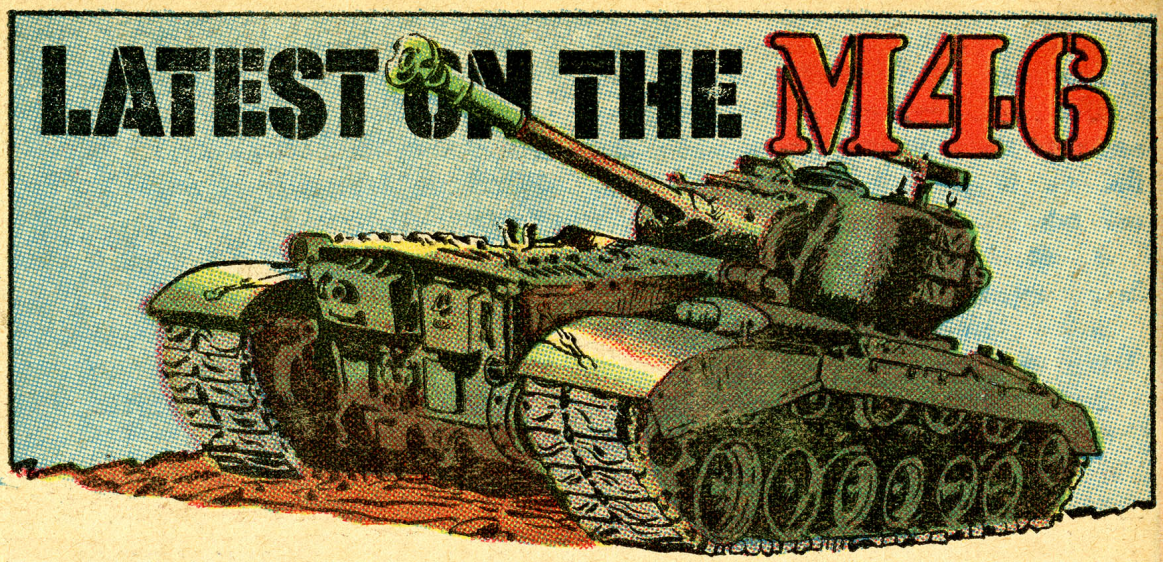
A bird's eye view of the echelons at work is shown below.

This illustrates what happens to a vehicle in a typical division—the echelons through which it passes and the work each echelon does on it.

Study the chart and find out where you stand.



LATEST ON THE M46



There have been production changes on M46 tanks having to do with the methods of draining the auxiliary generator engine and gear box—which if you don't know about them, may very well put you and your fanny behind the eight ball.

As detailed in a special teletype from the Office, Chief of Ordnance, all M46 tanks from #460 on up have a one-way drain valve and a one-way filler tube on the auxiliary generator. The oil is drained by removing the plug from the inspection plate on the hull floor under the auxiliary engine and turning the drain-valve handle from the top of the tank engine-compartment, to "open" position as stated on the instruction plate. After draining, turn the drain-valve handle to closed position and fill the crankcase to the prescribed level. But, on M46 tanks up to and including #460, the generator gear-box gets its oil under pressure from the generator-engine-oil pump. The auxiliary-engine units on these babies are equipped with one three-way drain valve and two filler tubes. One of these filler tubes is for the generator gear box and one is for the engine oil pan. Here's the important part: if you don't know the secrets of this three-way drain valve, you may wind up with all that nice oil down the drain instead of inside the auxiliary generator where it belongs.

Here's the secret: to drain the gear box of the generator, turn the L-shaped handle toward the rear-end of the tank. To drain the engine-oil pan of the generator, turn the handle towards the left side of the vehicle. To **close the valve, turn the handle toward the right side of the tank, the side on which the auxiliary engine is mounted.**

OK. Now, by the numbers, here's how you go about putting the oil into the auxiliary generator: (1) Make sure the little "L"-shaped handle is in the "off" position like we just said, pointing toward the right side of the tank. (2) Take off the gear-box-breather cap and fitting attached. (3) Open the oil-level drain cock. (4) Pour oil into the filler pipe, about one pint or until the oil begins to flow at the drain cock. (5) Close the drain cock and replace the breather cap and fitting.

Now, here's how to put oil into the **engine** of the auxiliary generator: (1) Take the cap off the engine filler-pipe. (2) Pour oil into it, about three and a half quarts. (3) Put the cap back on the filler pipe.

Just to make sure, slide around and check under the tank to see that the drain valve is in the "off" position, and that there is no foolish pool of oil under there.

MASTER JUNCTION BOX

There is a master junction box on the M46 tank through which just about all of the tank's electrical controls go. It is mounted in the rear of the turret between the two air cleaners. The best advice that anybody can give anybody is, keep yore cotton-pickin' fingers out of this junction box unless you've got important business in there and know what you're doing. One false move and you may burn out electrical units that will put the tank out of action as quick and completely as a shot, and we don't mean brandy.

We're not dreaming this, it's been happening.

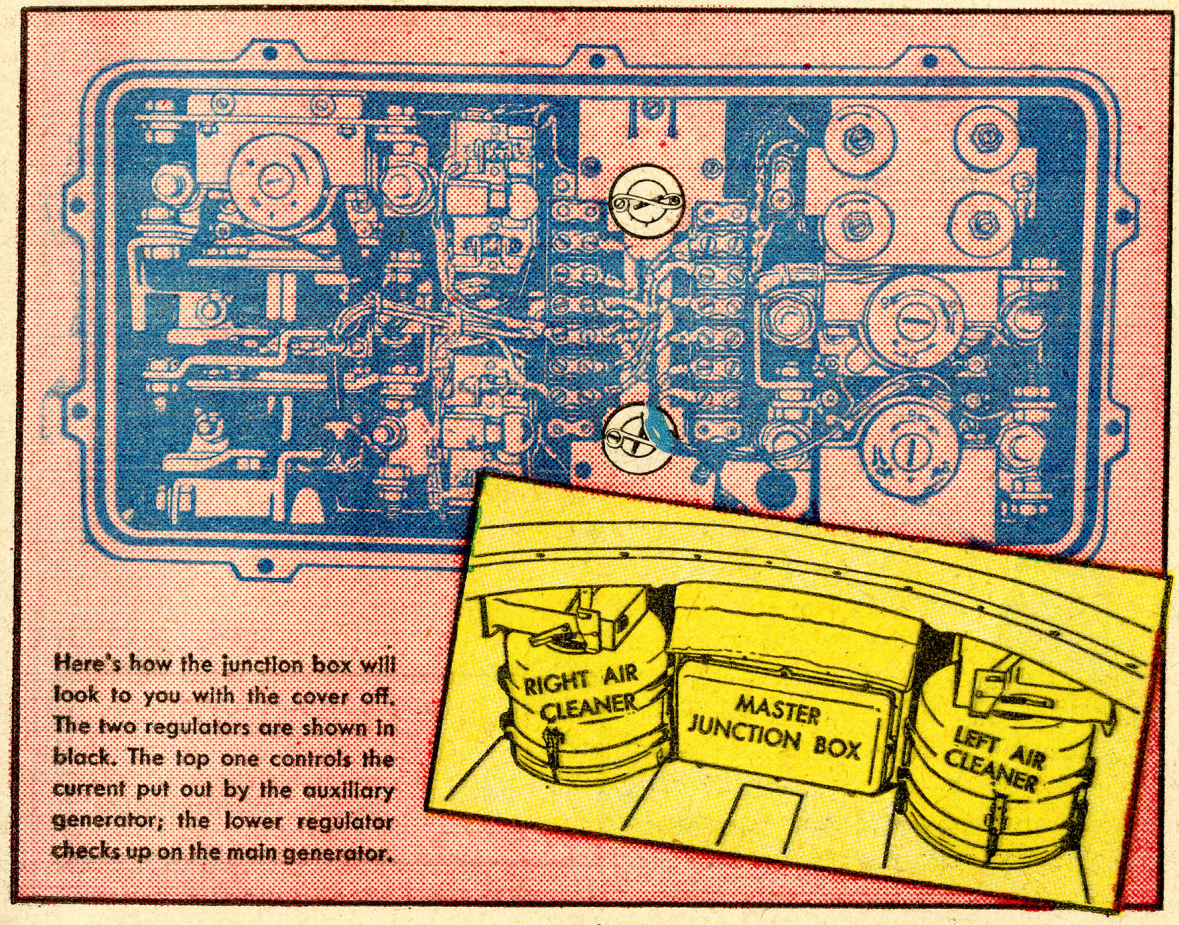
The thing we are especially talking about are the points on the polarized relay assembly. There are two of these assemblies, each with its set of points.

Authorized mechanics can change a bunch of things in the master junction box such as the carbon-pile voltage regulators*, the little mazda lamps used for the ballast (resistors), and the polarized relay assembly. But toying idly with the points heretofore mentioned is dangerous. They are very, very sensitive and if you should even so much as touch them the wrong way, you'll knock them out of whack.

Here's another thing: The points are magnetized. If while you're playing around down there, a couple of metal particles or even dirt, should fall down on the points, they may stick there and cause a short across the points.

Almost everything in the M46 works by electricity. This kind of short puts the tank out of business. Be careful.

*See box.



Here's how the junction box will look to you with the cover off. The two regulators are shown in black. The top one controls the current put out by the auxiliary generator; the lower regulator checks up on the main generator.

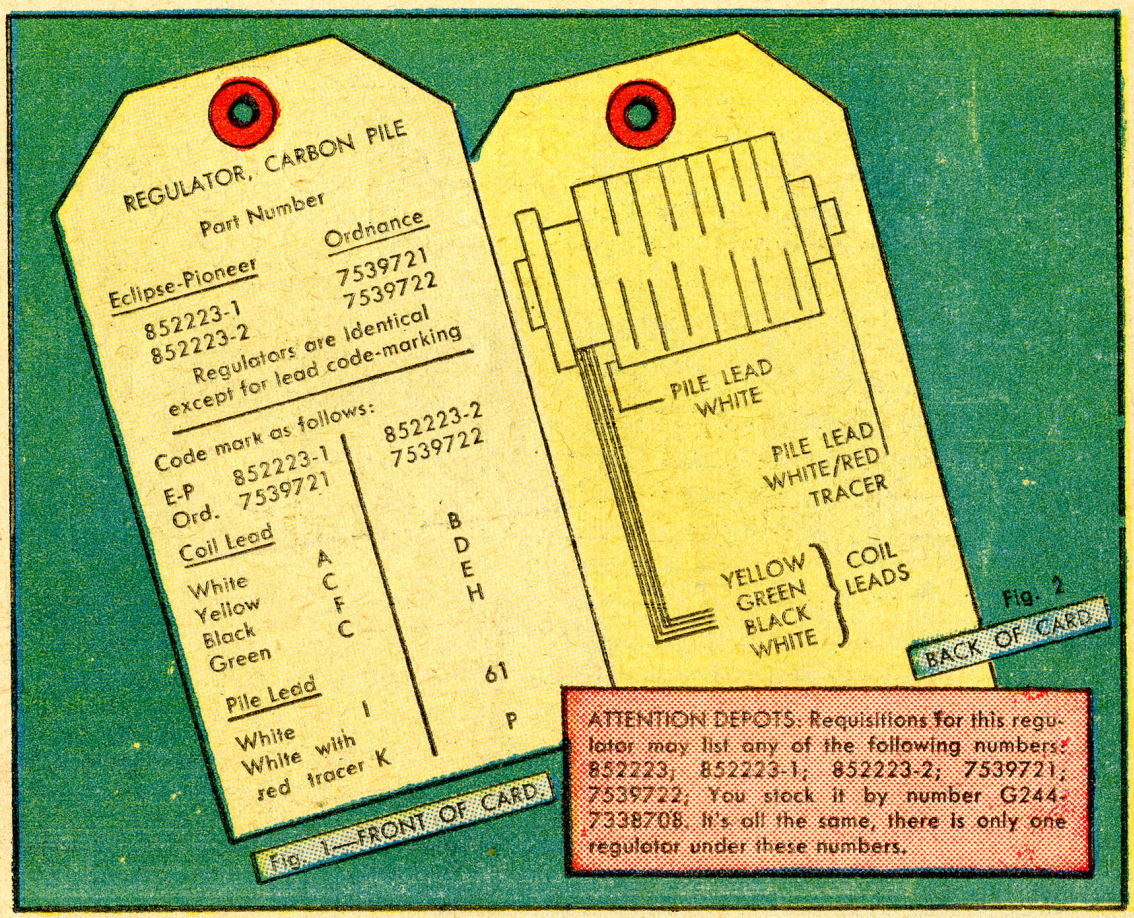
HOW TO WIRE THE VOLTAGE REGULATORS IN THE M46 MASTER JUNCTION BOX

Some people have been wondering whether the two carbon-pile regulators in the M46 Master Junction Box are identical, since one hooks to the main generator, the other hooks to the auxiliary generator and since TM9-1825C gives them different part numbers. You can unwrinkle your brow and leave the whole question to the wiring chart (fig. 1) printed here. It unravels the leads and insulation-colors for you and has been going out in the form of a card-tag, with all regulators and junction boxes shipped since 27 Feb. 1951.

The regulators **are identical** because there is **only one type regulator** for both uses in this junction box. The reason for the different part-number listing is that the regulators hook up differently as explained by the card reproduced below (figs. 1 and 2).

As you look at the junction box mounted in the rear of the turret, the regulator on top (marked BD in fig. 60 facing page 132 of the manual) controls current from the **auxiliary** generator, and the one marked SS in the same illustration regulates the **main generator.**

So all you have to do in replacing a regulator is be sure to follow the chart showing which colored leads on the regulators hook to which symbols on the plastic terminal-blocks (or cable terminals) in the junction box: Connect the white coil wire to A, the yellow coil wire to C, etc. And to be sure you don't get the two white wires mixed up, the diagram on the back of the card (fig. 2) shows which is the coil-lead and which is the pile-lead.



OVERDOSE OF O.D.

Too many tanks have too much war paint on 'em and it's making drivers overseas see red (and OD). The turret-traversing mechanism, f'rinstance, won't work because there're layers and layers of paint sprayed and slapped on—making a cement-like bond between the outside of the hull and the turret. Hatch locks, adjustable seats, throttle and choke controls, brakes, and ammunition ready-racks are just a few other items that can do with a lot less paint. Or a good scraping, if it's already there.

BRAKE EASY ON HILLS

As a gopher-hole buddy of mine, Pfc Gene Harris, who used to do a lot of riding in the western hills points out, a very dangerous thing happens when you apply the brakes too much. The drums get hot, expand away from the brake shoes—and the first thing you know, you're going like hell down somebody's mountain without any brakes. Which is roughly equivalent to being up the crik without any oars. I wish I could recommend something beside an anchor in this case, but if the driver knows what happens, he's less apt to get into trouble. Use the brake as little as possible going down hills.

THE CASE OF THE MISSING GM WASHER

Some oil-seal kits for rear-spring-seat bearings on GMC 2½ ton 6x6 ducks and trucks, and 2½ ton 6x4 trucks, were shipped without a spacer washer (the thing that keeps the clearance between spring seat and trunnion bracket) needed for the new lip-type seal. It isn't listed in the truck SNL G-508 (9 Sep. 43), either.

TB ORD 167 (17 Aug. 44) says you can do one of three things to solve the problem: (1) Requisition Washer, spring spacer, GM No. 2202834—the washer that should've been in the kit. (2) Requisition Washer, ball-bearing lock, Item Stock No. H12-711213 (old Item Stock No. M5-2-59100), Fig. 2. It's a bit thicker and larger than the real thing, but okay to use if

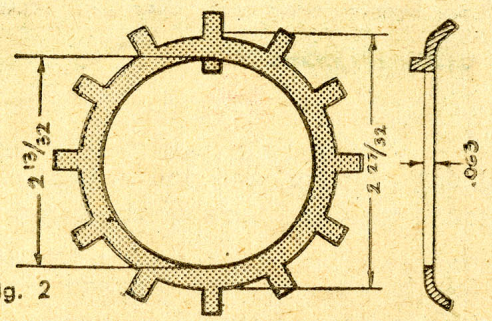


Fig. 2

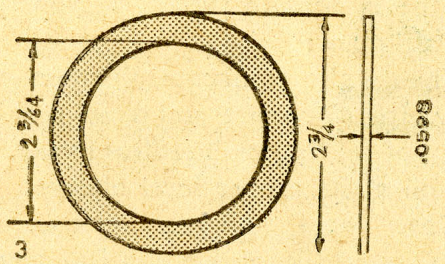


Fig. 3

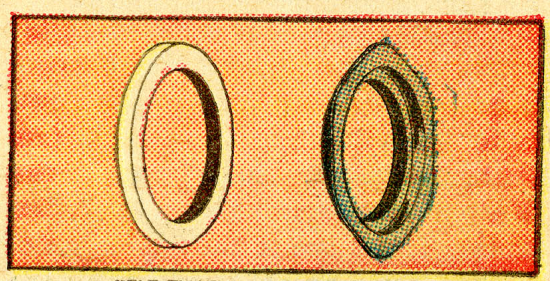


Fig. 4 FELT-TYPE SEAL LIP-TYPE SEAL AND FLANGE

ground down to the diameter shown or (3) follow the dimensions in Fig. 3. and make the washer from scratch.

Only kits with the lip-type seal (Fig. 4) got shipped without washers. Felt-type-seal kits are complete.

AIR-COMPRESSOR TILT

Are you bothered with GI's who like to waltz around the motor pool with your portable air-compressor while it's in operation? The latest latrine communique uncovered an AR which makes cold-blooded murder with a blunt weapon permissible for such offences. However, if you're complacent about this practice, some morning soon you'll find a hole in the engine-base big enough to toss a cat through.

You can turn the wreckage in for another unit (Notice I didn't say "another new unit")—but the replacement may not be as good as your present outfit. It may not start as easily; maybe oil will seep continuously from parts that have been welded, thereby making it a great dust and dirt collector, and you a great collector of the Old Man's wrath at inspections.

Now here's how you can add many healthy months to the life of your present air plant:

Change the crankcase oil often—very, very often. The time and oil involved is 2 snaps of the fingers. Needless to say, keep the oil at its proper level always.

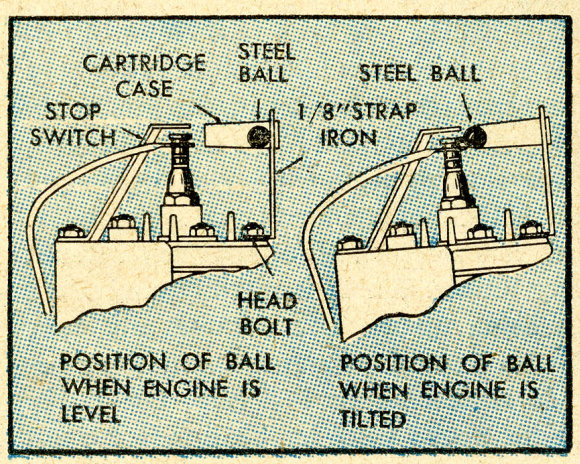
Next, you should bash over the head with your 16-lb. sledge any PM boy you catch racing the engine by holding the throttle valve open against the efforts of the governor to close it. Maximum penalty for using the sledge is one night's restriction to Bn. area, plus a 5-buck bonus.

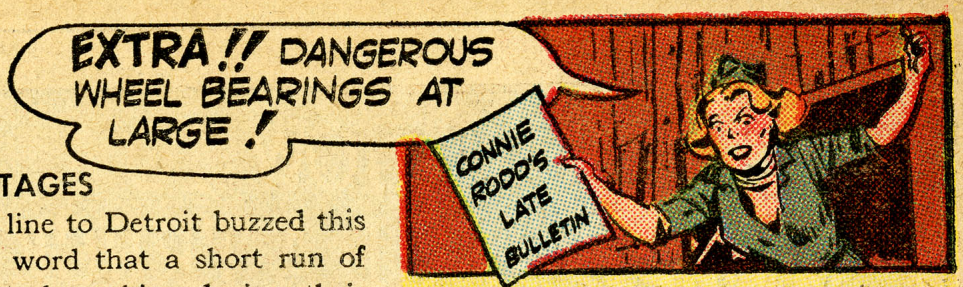
Keep the compressor always level when running. That's one of the limitations of this baby. Running it at too great an angle above the horizontal will sure as hell cause engine failure. A connecting rod diving into an oil pan and finding no oil gets as big a headache as a GI diving into a dry swimming pool.

Here's a nifty gadget to foil any attempts to run the unit while it's raised. I swiped the mechanics of it from the pin-ball machine in Joe's Barroom. Get yourself a piece of ⅛" strap metal about 6 inches long and 1 inch wide, an expended .50 cal. cartridge, and a steel ball that will just fit to roll free within the cartridge case. Now fasten the cartridge case to the strap metal so that it lies on a horizontal plane with the engine head. The open end of the cartridge case should be located so that it is just out of spark-jumping range from the spark plug. The rear head-bolt is an ideal fastener. The ball does the job from now on (see Fig. below).

As long as the plant is kept level, everything is Ho Kay; but when the handles are raised, the ball runs over to the plug and grounds it out. When the culprit sets the machine back down again, the good little ball rolls back out of the way.

The versatile can, of course, elaborate on this with the addition of bells ringing, lights flashing on the word "TILT" or even a device to dish out black eyes to all offenders. My primary interest is in stopping the engine when it's raised above the horizontal.





M38 SHORTAGES

My private line to Detroit buzzed this morning with word that a short run of M38 ¼-Tons has been shipped minus their slave receptacles on the right front fender, and some without trailer electrical-connectors.

These items were not available at the time of shipment, but will be sent along to you shortly if you have any of the few vehicles that got skipped.

So you can save yourself the trouble of requisitioning the two receptacles . . . when they're to be had you'll get 'em automatically.

OK, Detroit, now that my pretty neck is out on this promise please don't axe me. I want to be loved in September as I was in May.

WASH BATTERIES BEFORE TEMPSEALING

That's about all there is to it. Wash Batteries before you put on Tempseal #137 waterproofing compound. (As listed in ORD3 SNL-K1 Nov. 1949, Tempseal #137 is currently to be had only in two-pound cans under Stock Number 52-C-3096-900.)

The reason is that you've got to get off all corrosion or else your battery will discharge itself and you'll wonder why. Once you seal it under waterproofing gook, the corrosive residue makes a path between battery posts that in time will cause a small but persistent short.

You don't need any fancy chemicals or anything—just plenty of plain water and enough scrub to remove all the salt you can see.

This will save you looking for shorts that don't exist elsewhere.

SEE LATE BULLETIN ON PAGE 39

BETTER TAKE A SECOND LOOK AT YOUR 2½ TON M34 REAR AXLE WHEEL BEARINGS

A few thousand six-by-sixes went out of the Reo and Studebaker factories before DA Circular 1, 1951 hit the field. Section V of Cir. #1 announced the changes in all lube orders which make the interval to change wheel-bearing grease 12,000 miles instead of 6,000. (From semi-annually to annually.)

These M34's were lubricated with less grease than they need to cover the long pull, and you very likely have some of them in your own back yard right now. The best way to find out is to yank the rear wheels on all your M34's and put in the right amount of grease.

After you pack the bearings and cones, you should put about a **half-inch-thick smear in the hub!** To save measuring the thickness of the smear, I can tell you that it takes about **an even pound** of grease per hub to do the job.

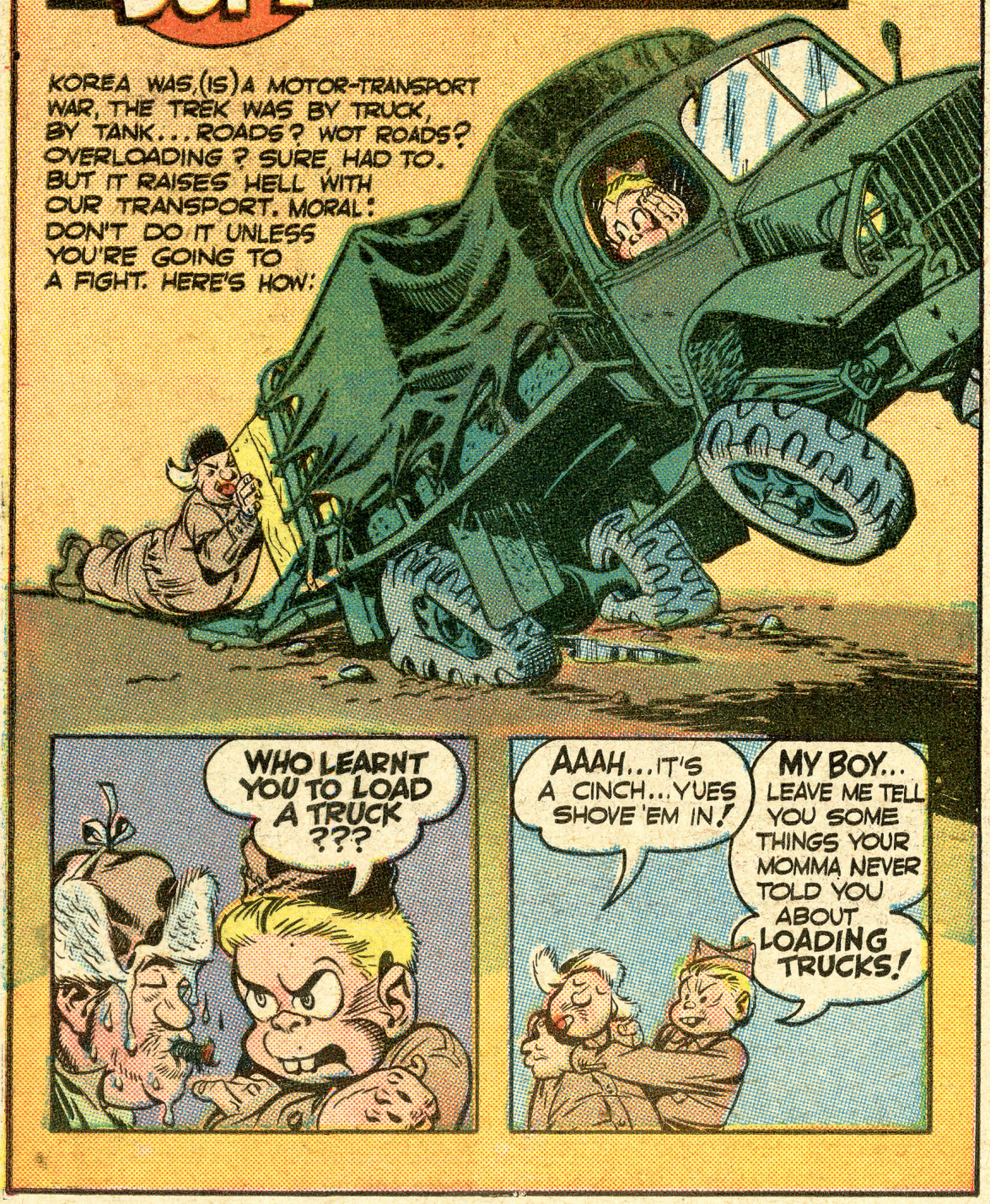
(Ed. Note: Basic lubrication policy for all vehicles is now being checked as a result of the new 12,000-mile interval. You'll get the word as soon as PS Magazine hears it from the engineers.)

Then, when you re-assemble the job, be sure to adjust those wheel bearings. Pull 'em up snug . . . back off ⅛ turn . . . and lock them tight.

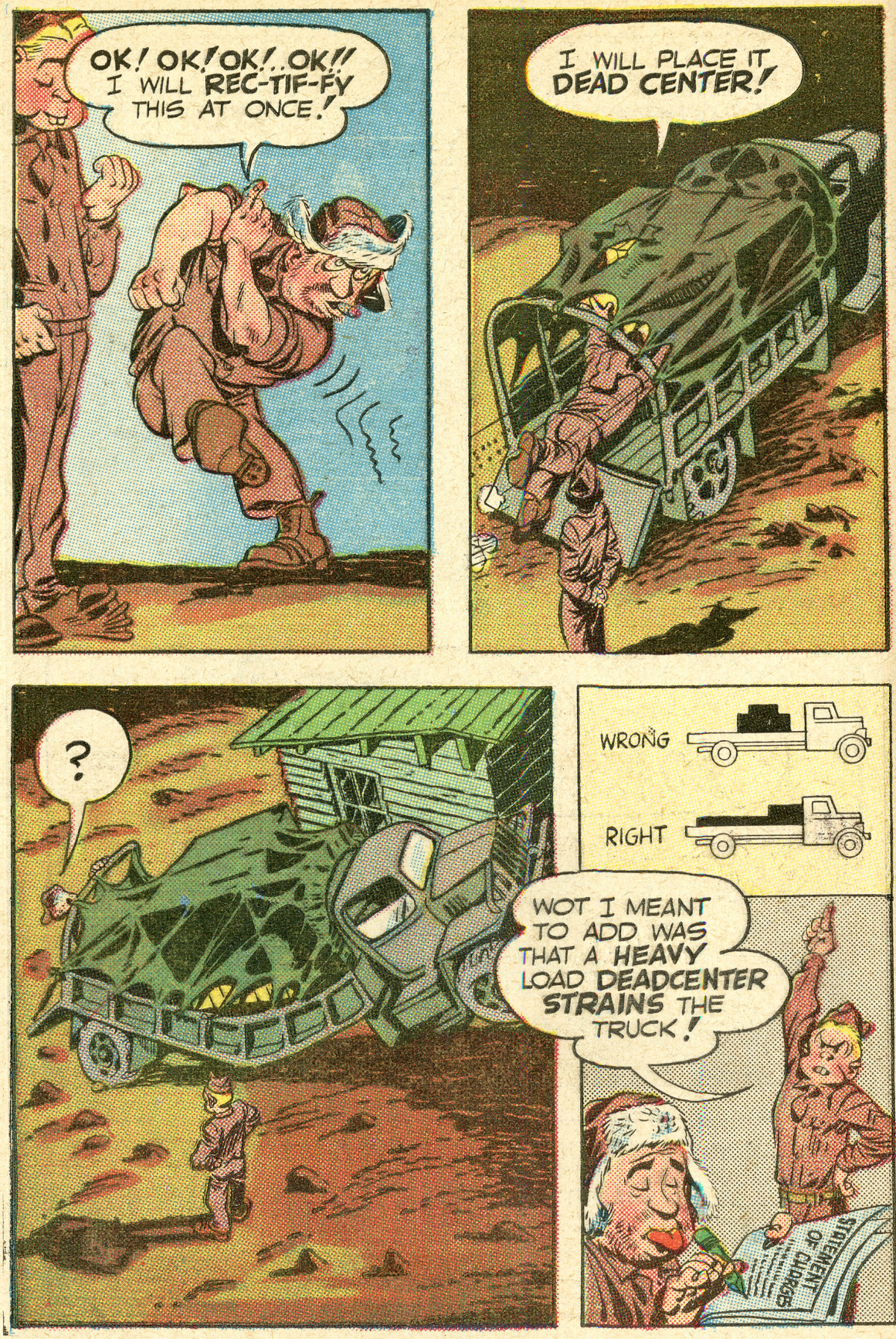
And take it from a friend, son, you'll do well to look into this little detail before those wheels turn many more revolutions!

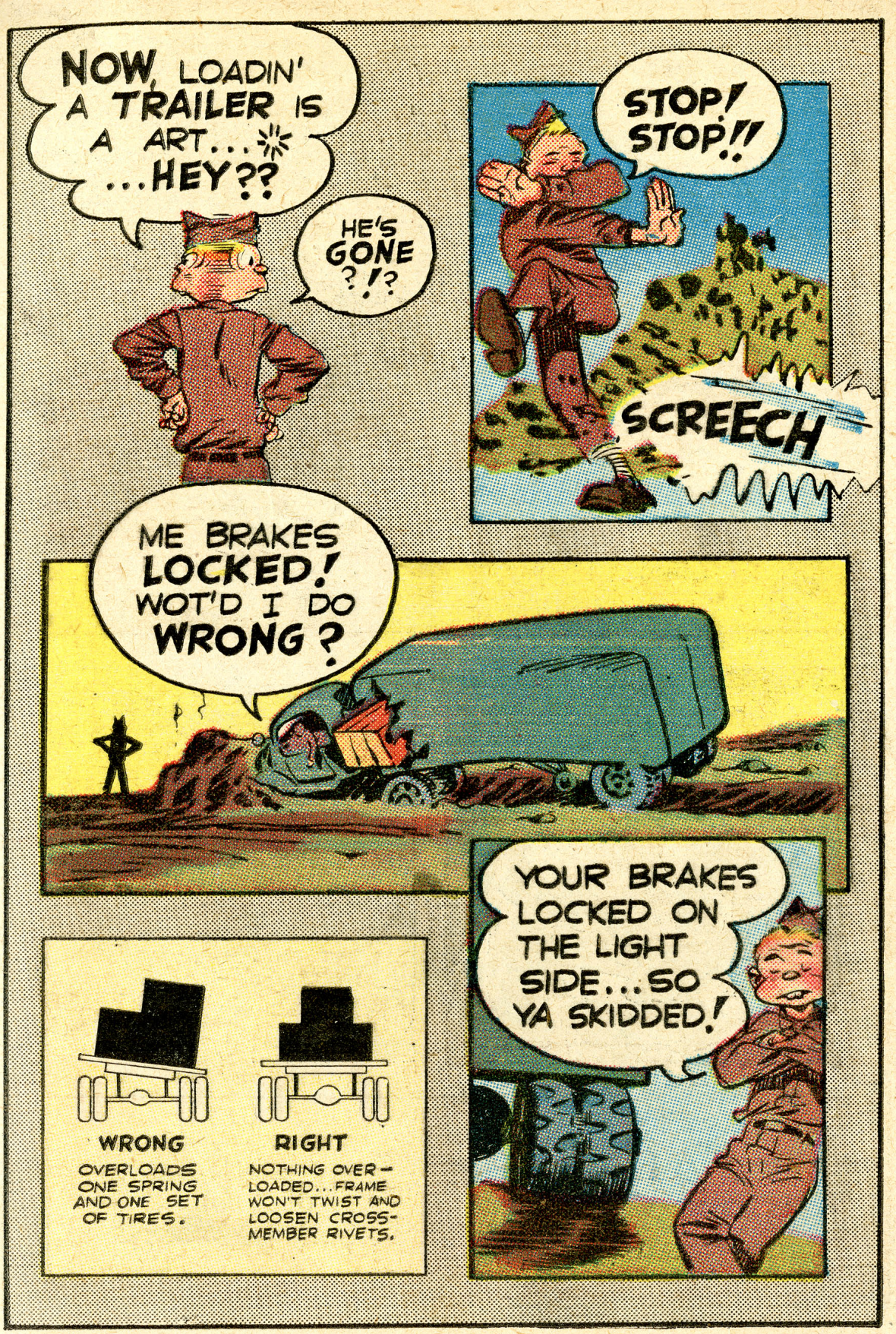
P. S. Reo M34's after 96912—, and Studebaker M34's after M485—have been taken care of at the factory.

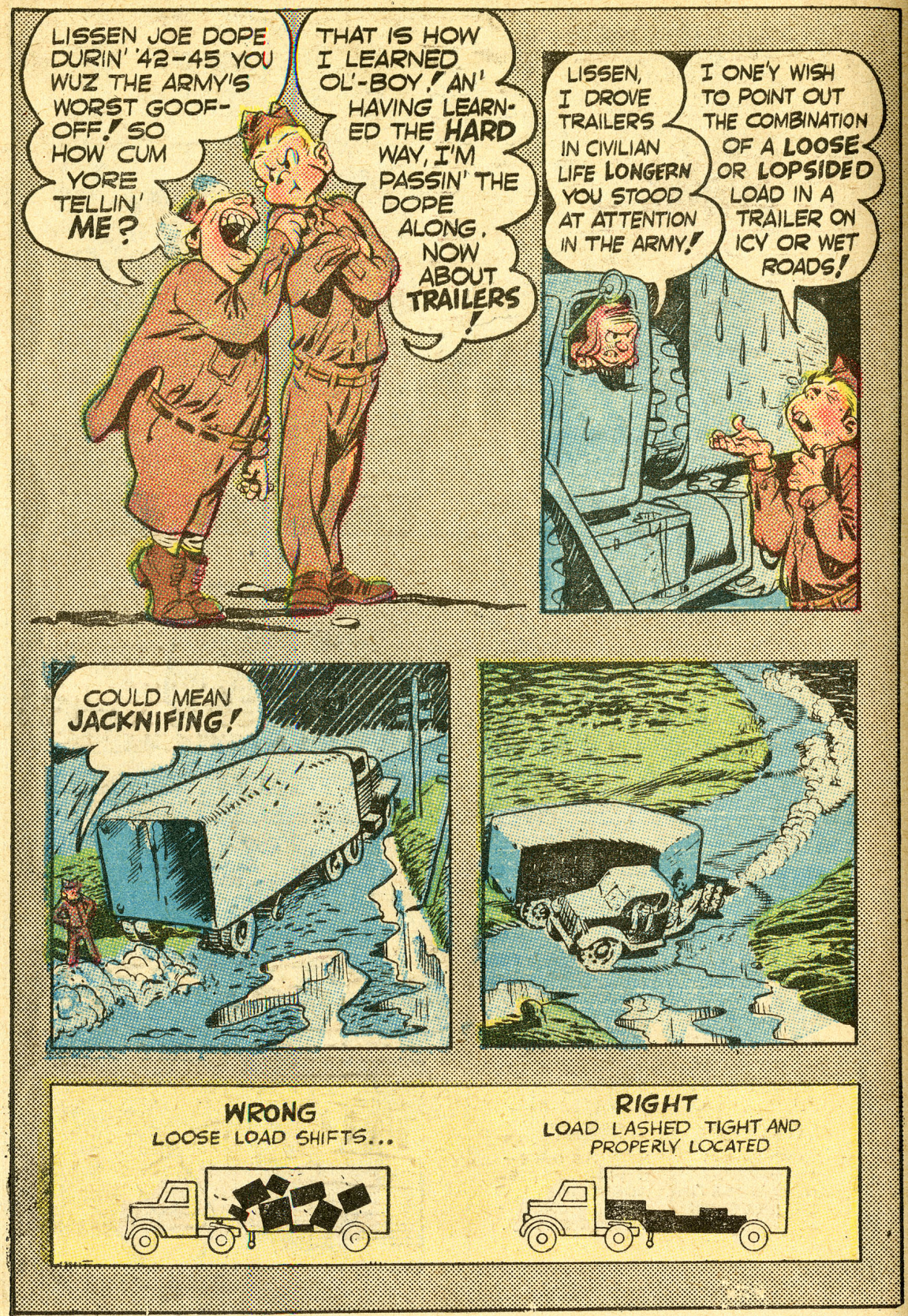
JOE DOPE IN HOW TO LOAD A TRUCK

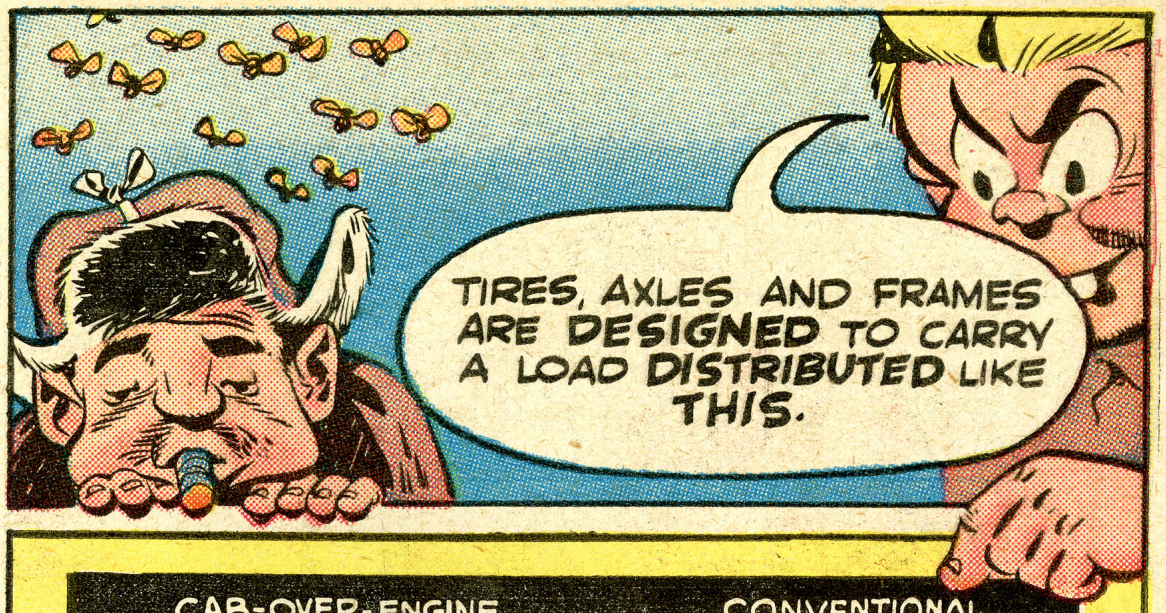


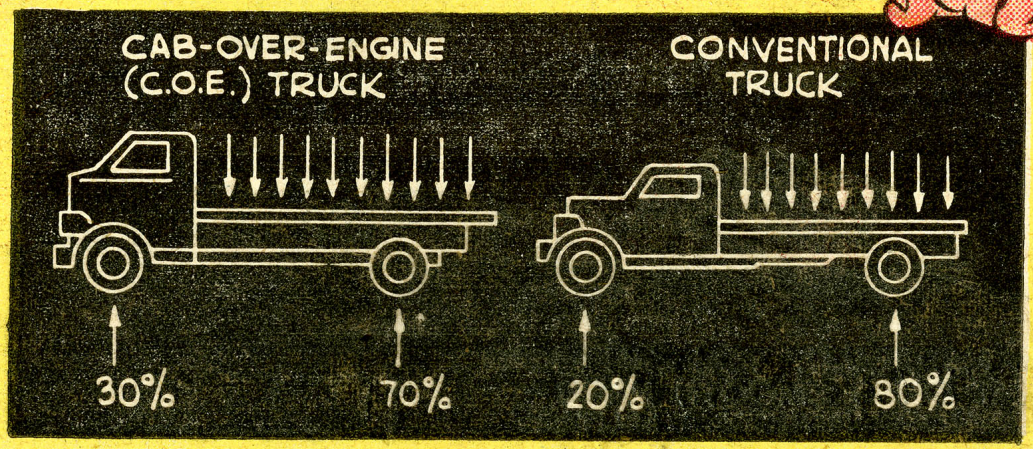
TRUCKS ARE BUILT TO TAKE A LOAD A CERTAIN WAY, PLACING THE LOAD JUST A LEETLE FORWARD OF THE REAR WHEEL SPREADS THE WEIGHT OUT EVEN!
AAAA....THAT'S ONLY A LOTTA CHICKEN! SO I AIN'T NEAT!!
NOT ONLY IS IT A PAIN IN THE AXLE BUT IT MAKES THE TRUCK HARD TO STEER!
PLACE THE LOAD JUST AHEAD OF THE REAR AXLE, THE LONGEST SIDE ON THE FLOOR, IF POSSIBLE.
WRONG
RIGHT


OK! OK! OK!..OK!!
I WILL REC-TIF-FY THIS AT ONCE!
I WILL PLACE IT DEAD CENTER!
?
WRONG
RIGHT
WOT I MEANT TO ADD WAS THAT A HEAVY LOAD DEADCENTER STRAINS THE TRUCK!
STATEMENT OF CHARGES

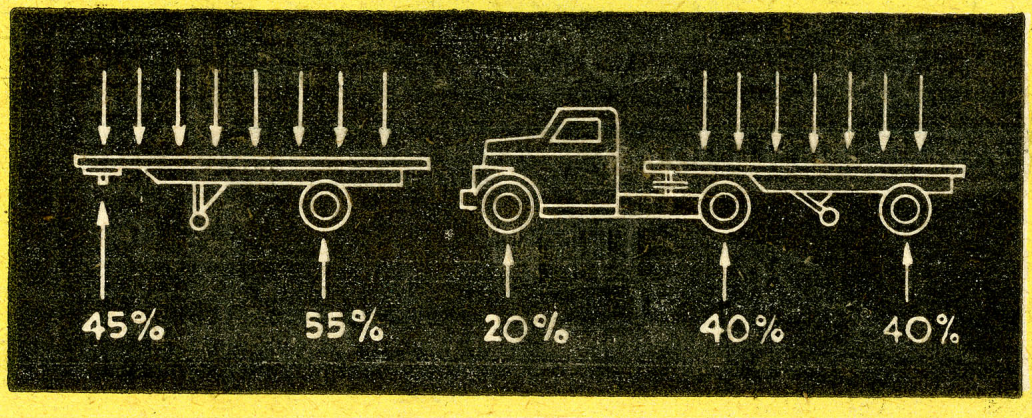

NOW, LOADIN' A TRAILER IS A ART... ...HEY??
HE'S GONE ?!?
STOP! STOP!!
SCREECH
ME BRAKES LOCKED! WOT'D I DO WRONG?
YOUR BRAKES LOCKED ON THE LIGHT SIDE... SO YA SKIDDED!
WRONG
OVERLOADS ONE SPRING AND ONE SET OF TIRES.
RIGHT
NOTHING OVER-LOADED... FRAME WON'T TWIST AND LOOSEN CROSS-MEMBER RIVETS.

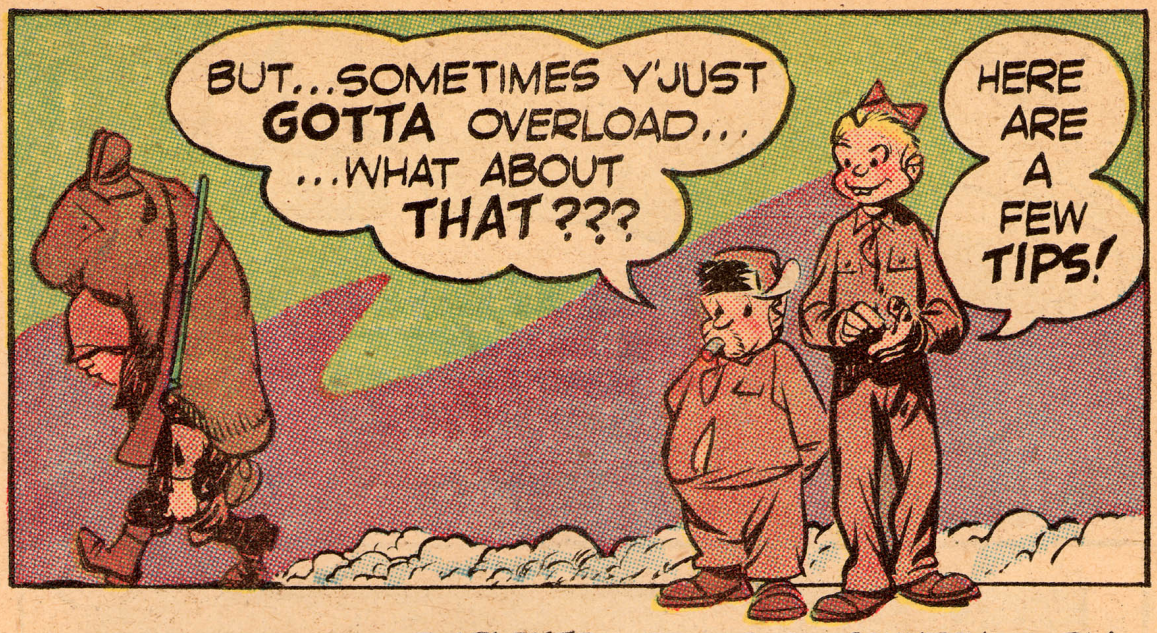

LISSEN JOE DOPE DURIN' '42-45 YOU WUZ THE ARMY'S WORST GOOF-OFF! SO HOW CUM YORE TELLIN' ME?
THAT IS HOW I LEARNED OL'-BOY! AN' HAVING LEARNED THE HARD WAY, I'M PASSIN' THE DOPE ALONG. NOW ABOUT TRAILERS!
LISSEN, I DROVE TRAILERS IN CIVILIAN LIFE LONGERN YOU STOOD AT ATTENTION IN THE ARMY!
I ONE'Y WISH TO POINT OUT THE COMBINATION OF A LOOSE OR LOPSIDED LOAD IN A TRAILER ON ICY OR WET ROADS!
COULD MEAN JACKNIFING!
WRONG
LOOSE LOAD SHIFTS...
RIGHT
LOAD LASHED TIGHT AND PROPERLY LOCATED



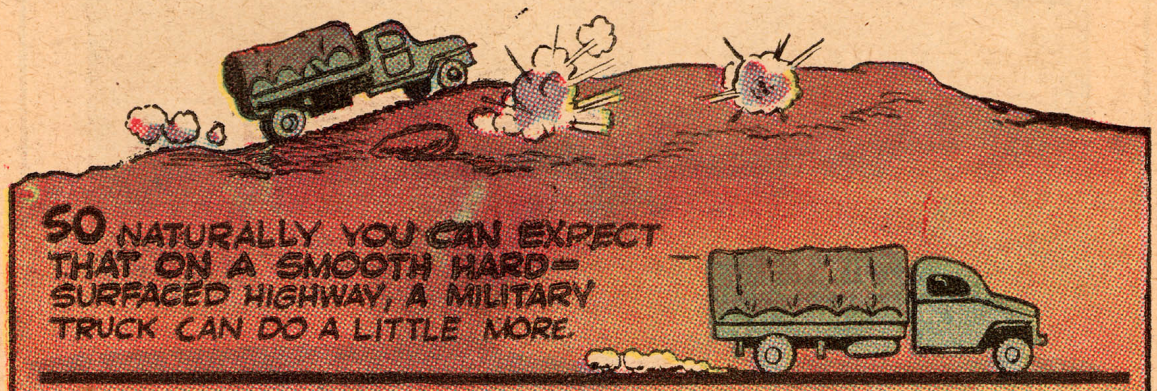


DISTRIBUTE TRAILER LOADS **EQUALLY** BETWEEN **REAR** AND **FIFTH** WHEEL. THIS TRANSFERS THE LOAD TO THE TRAILER.

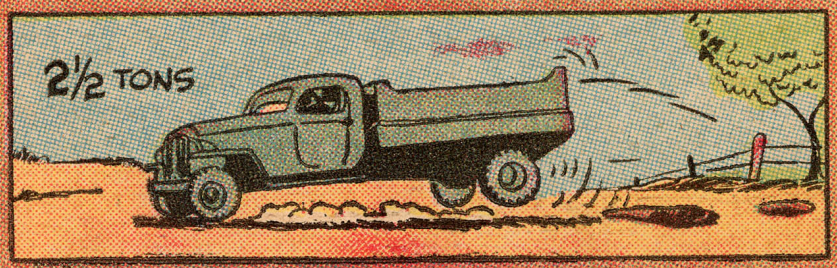




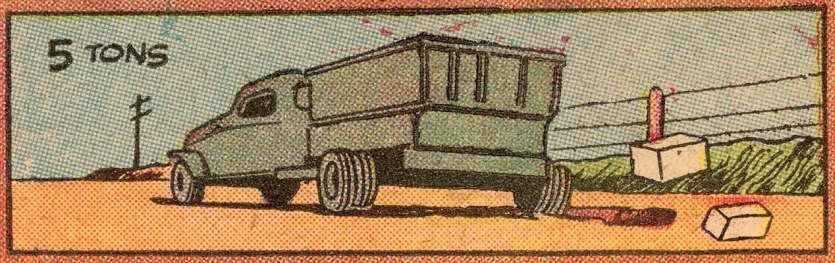
MILITARY TRUCKS ARE **DESIGNED** FOR CROSS-COUNTRY WORK.



SO NATURALLY YOU CAN EXPECT THAT ON A SMOOTH HARD-SURFACED HIGHWAY, A MILITARY TRUCK CAN DO A LITTLE MORE.



BUT, TWICE-AS-MUCH LOAD, COMES DOWN TWICE AS HARD.



OVERLOAD SCALE BY PERCENTAGE.

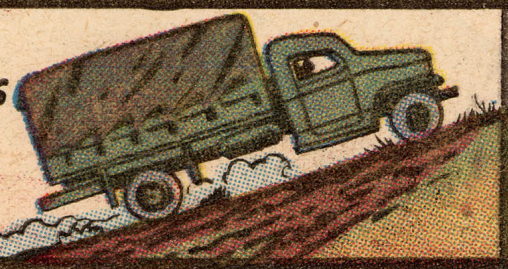
TRUCKS	%
ANY ALL WHEEL CARGO TRUCK UP TO 2½ OR 6X6	100%
TRUCK TOWING TRAILER	60%

REMEMBER!!!
OVERLOADING MEANS
MORE STARTING-MORE STOPPING
MORE GEAR-SHIFTING.

BE CAREFUL IN PICKING UP THE LOAD WITH THE CLUTCH...

STAY OUT OF FRONT WHEEL DRIVE ON SMOOTH ROADS

UP HILLS, THE ENGINE WORKS HARDER PULLING THE FREIGHT...

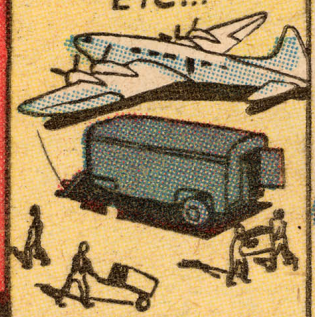


KEEP BOLTS TIGHT... TIRES FULL.

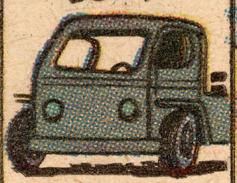
AND BE CAREFUL ON STEEP GRADES.

OVERLOADING NOT PERMITTED ON:

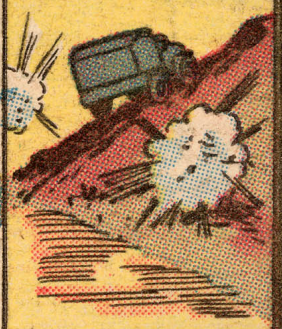
TRAILERS, EXCEPT AIRBORNE ETC...

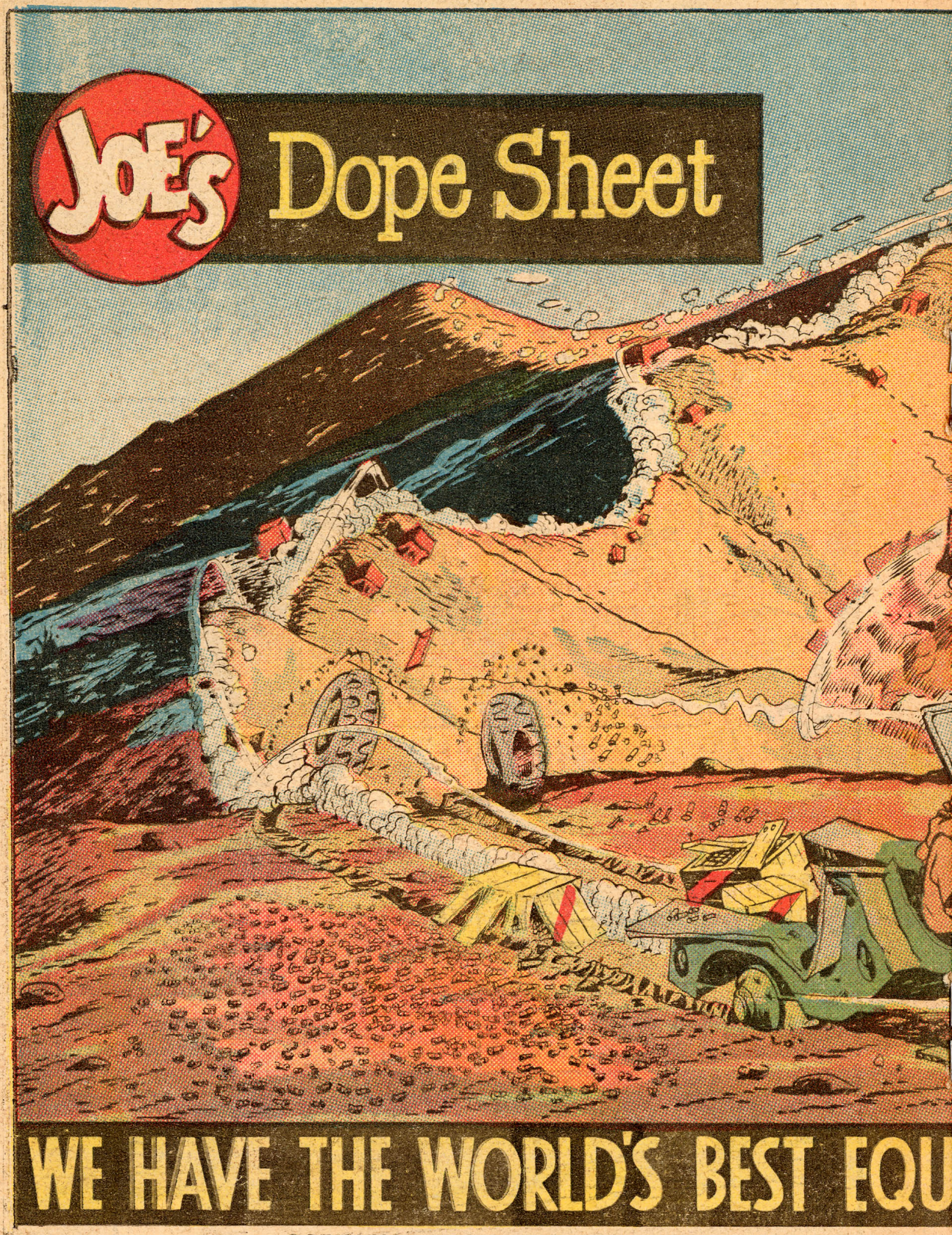


2½ TON 6X6 C.O.E. WITH 15' BODY OR WITH 17' STAKE AND PLATFORM BODY...



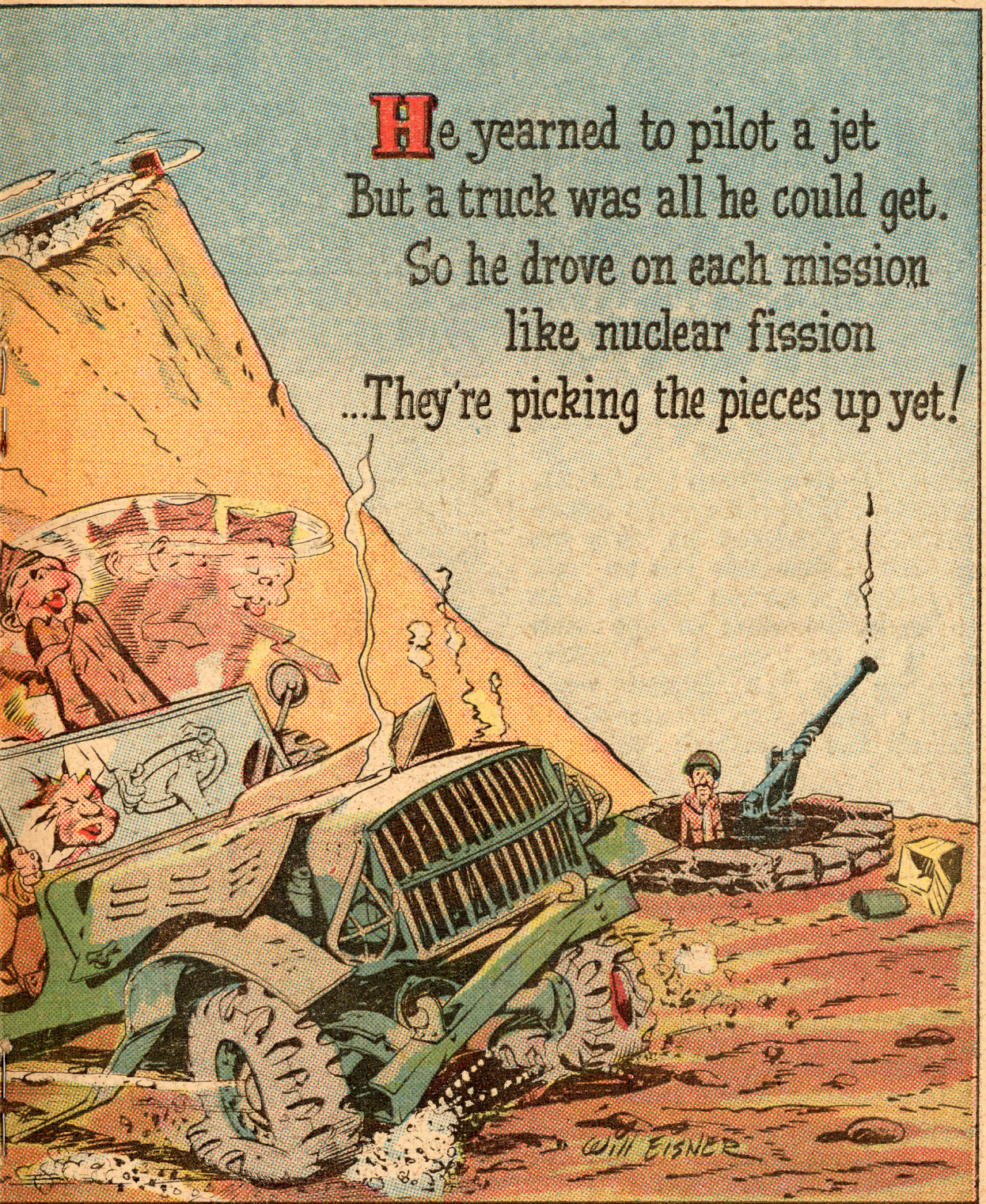
ANY VEHICLE OPERATING CROSS-COUNTRY.





GOT ANY LIMERICKS ON MAINTENANCE?? . . . . SEND 'EM IN . .
AND SEND YOU A *PRIVATE* SUBSCRIPTION TO P. S. MAGAZINE, *FREE* .

JOE'S Dope Sheet
He yearned to pilot a jet
But a truck was all he could get.
So he drove on each mission
like nuclear fission
...They're picking the pieces up yet!
WILL EISNER
WE HAVE THE WORLD'S BEST EQUIPMENT...Take care of it
GOT ANY LIMERICKS ON MAINTENANCE?? .... SEND 'EM IN .... WE'LL ILLUSTRATE AND PUBLISH THE BEST ONES
AND SEND YOU A PRIVATE SUBSCRIPTION TO P. S. MAGAZINE, FREE .... WE'LL NEED LOTS OF 'EM SO YOUR CHANCES ARE GOOD.



IPMENT...Take care of it

. . . WE'LL ILLUSTRATE AND PUBLISH THE BEST ONES
. . . . WE'LL NEED LOTS OF 'EM SO YOUR CHANCES ARE GOOD.

11 REASONS WHY REQUISITIONS GO WRONG

Next time the Old Man gets on his horse about the vehicles you've deadlined for lack of parts, do what you always do—blame the depots. The depots can take it, whether it's their fault or not.

But you're the guy who needs the parts. They're the life stream of your maintenance job, and no amount of blaming will get them for you any sooner. There's one important thing you can do, though, to speed them up: SUBMIT BETTER REQUISITIONS.

WHEN a man sits down to order parts, we take for granted he has a neat pile of TM's, SR's, and SNL's at each elbow and that he knows by this time that everybody along the chain of supply uses the Ordnance Stock Number located handily in column 2 of the SNL. Yet, every time we visit a supply point we find the joint cluttered with bits of torn hair and gnashed teeth from the heads and mouths of the men who try to fill orders. So we promised our good friends among the hair - tearing - teeth - gnashing fraternity that "P.S. Magazine" would try to make it very unfashionable to commit these eleven basic mistakes

1 JUMBLED PARTS FOR DIFFERENT MAJOR ITEMS ON SAME REQUISITION

Result: Delayed shipment or wrong part.

ITEM NO.	STOCK NO.	NOMENCLATURE
1	0040-1529938	Cleaner, Air, Assembly
2	G503-0169093	Element, Air Cleaner w/Wing Belt, Assembly
3	F235-7669496	Head, Assy.
4	C059-6223824	Strap, Stowage, Powder Can

Paragraph 6, page 6, Ord 1, Supply Catalogue tells you just what items to list on any **one** requisition. It may seem logical to order these items all together but it fouls up the supply people and slows delivery of your parts

2 DIDN'T NUMBER REQUISITION PROPERLY

Result: Lost or delayed shipment.

TO	C.O. LETTERKENNY ORD. DEPOT, CHAMBERSBURG, PA.
SHIP TO	ORDNANCE OFFICER 91st. SERVICE GROUP

Requisition number assignment must be in accordance with TM38-403 paragraph 2(i) and must be a combination of station-number and serial-number, as example: Req. No. 44-055-298 (Station is number 44-055; requisition Serial Number is 298). This system helps identify the requisitioning unit.

3 REQUISITIONED KIT THAT DOES NOT EXIST

Result: Waste of time and labor.

ITEM NO.	STOCK NO.	NOMENCLATURE
1	MWO-Ord G501-W31	SNL G501 Truck, 2½ Ton, 6x6 Amphibian (GMC Dukw-353) Modification Kits

Numbers listed as "Stock number" above are Maintenance Modification work order numbers. They are not "stock numbers."

MWO Ord G501-W31 prescribes maintenance required to modify Rail, Hub, Side panel and specifies that no parts are required.

MWO Ord G509-W5 prescribes maintenance required to modify for installation of larger size tires. Paragraph 5A of MWO lists parts required to accomplish this modification. Paragraph 5C gives source of parts supply and Ordnance Stock number for requisitioning.

Read the whole MWO—Order parts if required but order them as directed in the work order.

ITEM No.	STOCK NO.	NOM
1	MWO Ord G509-W5	SNL G509 Truck, 4 ton 6x6 (Diamond T) Cargo Kit, Cross Country Tire

4 DIDN'T GIVE ADDRESS

Result: Delayed or lost shipment.

TO	94th Ord. Med. Aut. Maint. Co. 4th Ord. Bn., Stoney Field, S.C.

Fifty modification kits were packed and waiting for this company, but the Depot didn't know where to ship them. Stoney Field wasn't listed in the current Postal Guide, and its nearest railhead goes under another name.

Give the railhead and post office address, especially if you're located at a new camp.

TRANSPORTATION OFFICER, Ft. Dixon, S.C.
For: S.O. 94th Ord. Med. Maint. Co.,
4th Ord. Bn., Stoney Field, S.C.

5 DIDN'T EXPLAIN UNUSUAL REQUEST

Result: Reduced or delayed shipment.

NOMENCLATURE	UNIT	QUANTITY REQ'S'N'D
Tires 750 x 20 8 ply Mud and Snow	ea.	900
Element Oil Filter (FM-GPW-18362)	ea.	5000

If these quantities are authorized say so. Protect your interests. Always give the basis for requirements. TM 38-403 tells you on what basis quantities may be ordered, then you put this information in your requisition so there will be no doubt about your need. Also give your **control level** on hand, due-in, and due-out information.

6 DIDN'T LIST ANY PARTS NUMBER

Result: Delayed shipment or wrong parts.

STOCK NO.	NOMENCLATURE
unknown	GMC 2½ Ton 1942 Rear Axle Assembly ea.
Required to remove vehicle from deadline	

What this sergeant needed was Ord 1 Index. This publication identifies every major item: trucks, tanks, guns, gun carriages, etc. and tells you which SNL parts Supply Catalogue carries the item numbers.

STOCK NO.	NOMENCLATURE
Unknown	MAKE-GMC Model-CCKW-353 Reg. No. USA-4277831 Year-1942 Rear Axle Assy. Forward unit. ea.
Required to remove GMC Model CCKW-353 from deadline. Parts book not on hand; however, sufficient information furnished from proper identification by Depot or OSCS involved.	

7 GAVE WRONG KIND OF STOCK NUMBER

Result: Delayed shipment.

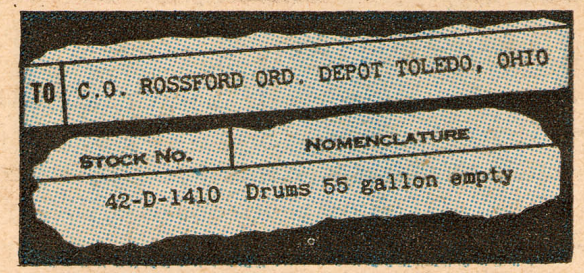
ITEM NO.	STOCK NO.	NOMENCLATURE
		SNL G502 Truck, ¾ ton, 4x4 (Dodge T214)
1	May 2030	Armature, Assembly
2	928720	Shaft, Propeller, Intermediate
3	5/16"-24x2 51/64	Bolt, Hex Head

This gentleman obviously knows what he wants because he's got numbers. Only trouble is the Depot hasn't stocked the items this way for years.

ITEM NO.	STOCK NO.	NOMENCLATURE
		SNL G502 Truck, ¾ Ton 4x4 (Dodge T214) Group 06 Electrical
1	G502-6266583	Armature, Assembly
		Group 09 Propeller Shaft
2	G507-0407826	Shaft, Propeller, Intermediate w/o Universal joint assy.
3	G121-0124362	Bolt, Hex-Hd., S., 5/16-24x2 51/64

8 ORDERED QM SUPPLIES FROM ORDNANCE DEPOT

Result: Delayed shipment.



Learn **your** particular supply channels. Get Ordnance issue material from Ordnance; get QM stuff from the QM, etc.

Agreed, some items are still not settled but Special Regulations, Series 700-51 is standardizing the listings at a fast rate. Make sure you have SR 700-51 (whole series) and keep it up to date.

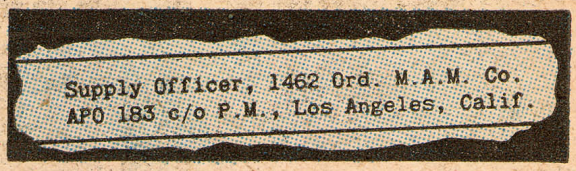
9 FRIEND COULDN'T HELP HIM

Result: Delayed Shipment.

Special attention takes special handling. Special handling wastes time. Depot procedure is automatic. It doesn't help to direct requisitions for special attention. Trying to get favors or priority from people you consider your friends breaks the flow of supply action. And besides, Lt. Bollicks was shipped to Gebru eight months ago.

10 OVERSEAS OUTFIT TRIES TO SHORT CUT POE

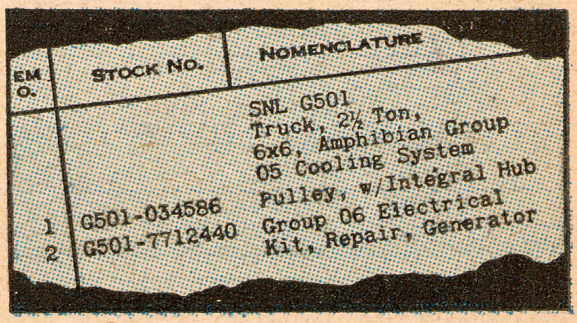
Result: Delayed or lost shipment.



Supply is always faster and more certain, through channels. Overseas Supply requisitions should be directed to and supplied through the POE. See TM 38-418.

11 COPIED WRONG STOCK NUMBER

Result: Delayed shipment or wrong parts.

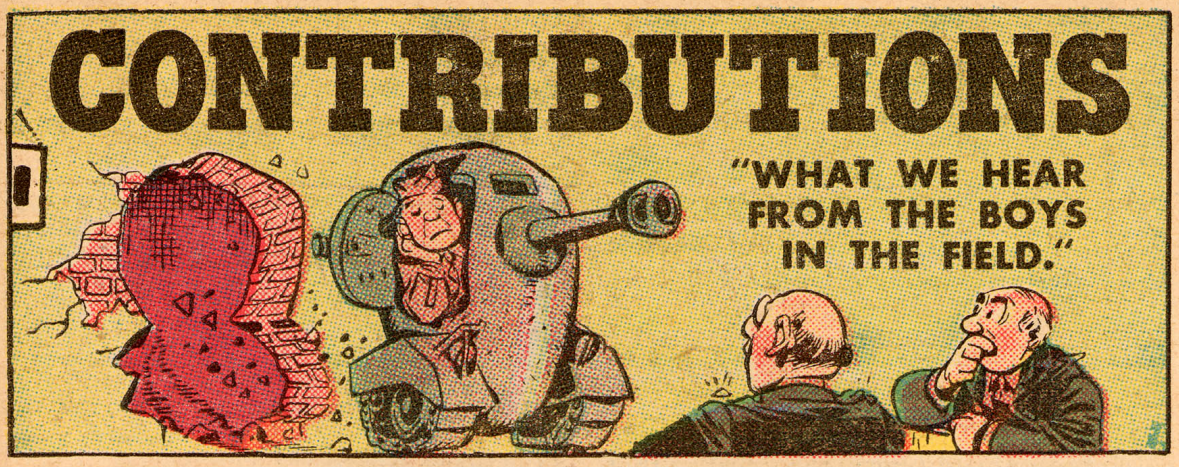


Item #1 ordered by incorrect stock number G-501-034586 could have meant G501-034866 or G501-0345867. Both numbers are good stock numbers, but identify a pulley used on different pumps.

Item #2 ordered by incorrect stock number G501-7712440 could have meant G501-7712449 or G501-7712450. Both are good stock numbers, but identify Kits used to repair different generators. Double check! Make sure the stock number and nomenclature agree and be sure they agree with the SNL Ordnance Stock number.

ITEM NO.	STOCK NO.	NOMENCLATURE
		SNL G501 Truck, 2½ Ton, 6x6, Amphibian Group 05 Cooling System
1	G501-0345866	Pulley, w/Integral Hub
2	G501-7712450	Group 06 Electrical Kit, Repair, Generator

CONTRIBUTIONS



WATCH THAT WIPER BLADE

Pfc. John R. Espenan, 176th Engrs. (G.S.) Med. Det., says too many vehicles in his outfit were running around minus or with ruined windshield-wiper blades. Reason is the trucks run into low-hanging branches, through thick bushes, or strike the entrance to camouflage nets or tents used as field garages.

To save yourself from getting caught without a blade when you need it bad, says Private Espenan, hop out and take a look at the blade everytime any such obstruction strikes it. Look for the wiper's elbow to be bent or for the blade to be loose enough to drop off. Or you can put a drop of solder where the blade hooks to the wiper arm. That ought to hold the blade in place.

CARBURETOR SHAFT BEARING

Sgt. E. Rissmann, APO 159 writes:

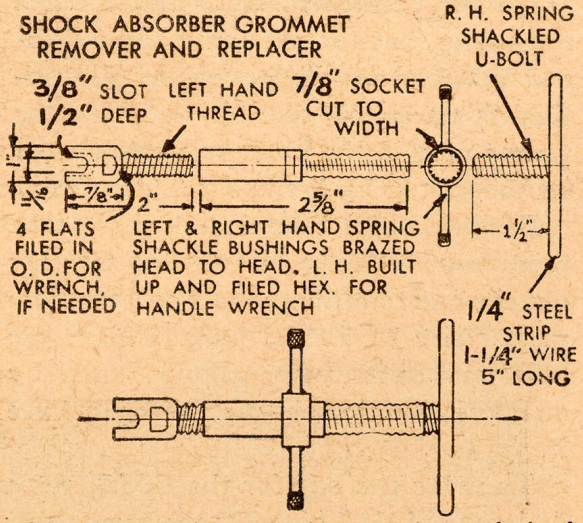
On Briggs & Stratton engines, the white metal of the carburetor wears very fast where the bar (throttle-shaft-and-lever assembly) goes through. I've had good results using a piece of bronze shim stock as a bearing. This also keeps the air from leaking in at this point, which makes the motor run better.

(Ed. Note—In the pinches, this fix'll do it. But if your carburetor's that far gone, replacing it is your best bet.)

JEEP—SHOCK TOOL

Capt. Kenneth F. Searcy 538th Ord MAM Co. sends this tool to compress jeep shock-absorber bushings for easy removal and replacement of cotter pins, which he says was invented by **S.F.C. John H. Ward.** Captain says the most important thing about the idea is that the guys in the shop used to put the jobs back up with an undersize pin that would let the washer back off, which in turn gets the new bushing pounded apart long before its time.

P.S. Magazine has found some people using a length of slotted pipe and a lever for the same chore, but Sgt. Ward's tool is the real thing. A free personal subscription for P.S. to both you gentlemen.



It goes against the tire for the top bushing—the backing plate for the bottom.

HOME-MADE TROUBLE LIGHT

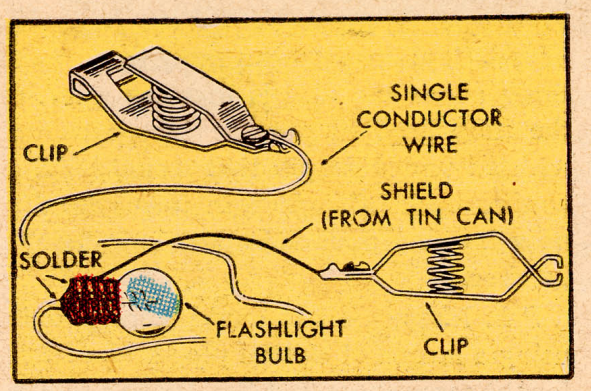
Pvt. R. A. Mikesell at Fort Ord, California says:

Our company has been on the waiting list for 6-volt trouble-light bulbs for so long that we've developed a very effective home-made "Glow-line."

Here's the recipe: Two universal clips, a length of single conductor wire, one 6-volt flashlight bulb, and a small tin can.

Mix together quickly as follows: Clip, wire, bulb, shield (can), clip—just in that order (Fig. below).

If carefully used, so you don't strike sparks with the clips and create a fire hazard, it's swell. Gets into all kinds of tight places where the big boys can't go.



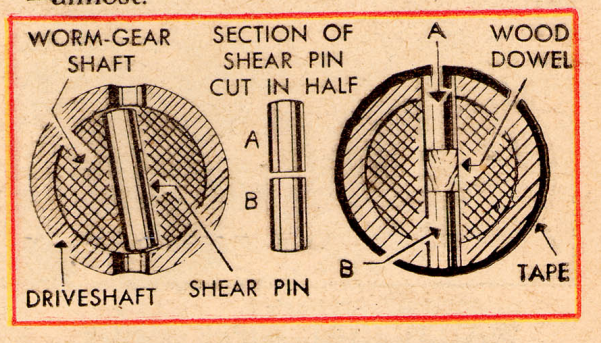
BRAKE CYLINDER WRENCH

T/4 M. V. Brown, APO 18215 offers something that's saved him many a skinned knuckle and improved my disposition. It's a simple tool for removing the vented plug in the brake master-cylinder on the ¾-ton Dodge and 2½-ton GMC.

For the Dodge, take a piece of ¾" iron pipe about 12" long. Heat it and hammer out one end to form a square socket of the proper size to fit the plug. Square the other end so it can be gripped easily by an adjustable wrench—and there you have it.

To make the one for the GMC, get a 6" length of 1¼" pipe. Do the same thing you did to the other, but square only one end. Drill a hole through the other end and insert a pin for a handle—or a screwdriver will do just as well.

Makes checking brake fluid a pleasure—almost.



SHEAR-PIN SUBSTITUTE

From Sgt. Robert E. Fortin, Service Co., 5th Infantry, comes this temporary repair for broken shear pins, when new pins aren't available.

Punch out the piece of shear pin that's left in the worm gear shaft and cut the piece in half. Use a wood dowel between the two halves of the pin as shown in the diagram. A little friction tape over the ends of the shear pin sections will keep them in place.

The repair is only a temporary one and should be used only in an emergency, when your last **spare** shear pin is shot. If the pins are shearing too often, you're probably overloading the winch cable.

M5 TRACTOR DIAPHRAGMS

We've got some new M5 High-Speed Tractors with an average of only 15 engine hours on them, and the rubber diaphragms in the low-pressure indicator buzzers aren't holding up. Two of the original diaphragms have broken in the same place—the air pressure seems to be too much.

I figured a thicker diaphragm might be the answer. There aren't many parts available here, so I cut the diaphragms from wheel-brake-cylinder cups. By leaving out two of the three washers, the buzzer cuts out at 62 lbs., which is within the

55-to-65 lb. pressure limit. They work fine.

T/4 F. Steinkirchner
763 FA Bn.

(Ed. Note—When installing your diaphragm, remember to allow enough slack for freedom of action between the plates. Incidentally, there was a later production change strengthening the diaphragm. But since new diaphragms can't be requisitioned separately, your fix should come in very handy.)

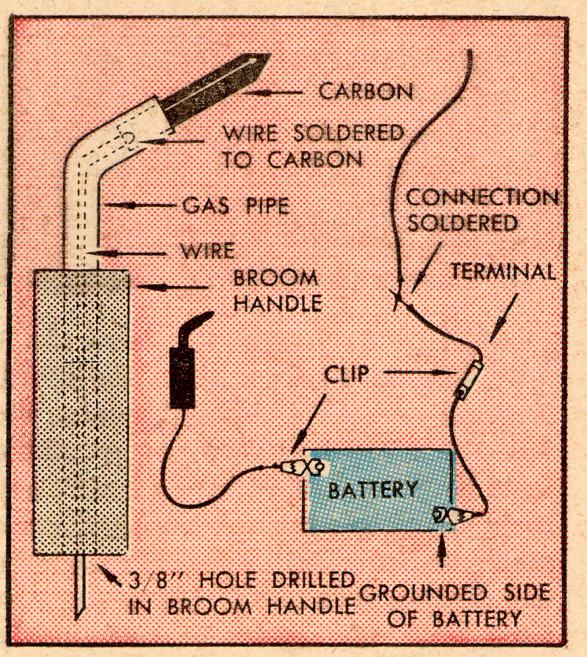
SOLDERING GIMMICK

S/Sgt. Russell Smith says he lost plenty time heating up a blowtorch and soldering iron to do five-second jobs on a wire connection—until he fixed him a little iron to use off a battery. Listen:

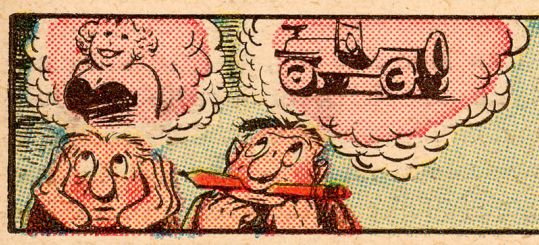
"Here's all you need: 3 universal battery-clips, an old flashlight battery carbon, a piece of broomstick 3" long, a piece of ⅜" gas pipe 3" long, and two pieces of high-tension wire, both about 4 feet long. First, put a battery clip on each end of one wire. Then put a battery clip on one end of the other wire. Drill a ⅜" hole lengthwise through the broom handle. Run the end of the wire through the handle and gas pipe. Push the pipe back in the handle about an inch, and bend the other end of the pipe at a 45° angle (see Fig.). To attach the wire to the carbon and solder the end of the wire in this hole. Then push the carbon in the pipe about ¾". Point the carbon end like a pencil for better contact when soldering

"Take your wire with the two battery clips and connect one end to the grounded side of the battery and the other end to the wire to be soldered (see Fig.) Then attach the battery clip on the soldering iron to the insulated side of the battery. Now you're all set to solder.

"Maybe this'll save the fellows a lot of time, and it won't hurt a battery. You can connect to any live wire in a vehicle and solder connections."



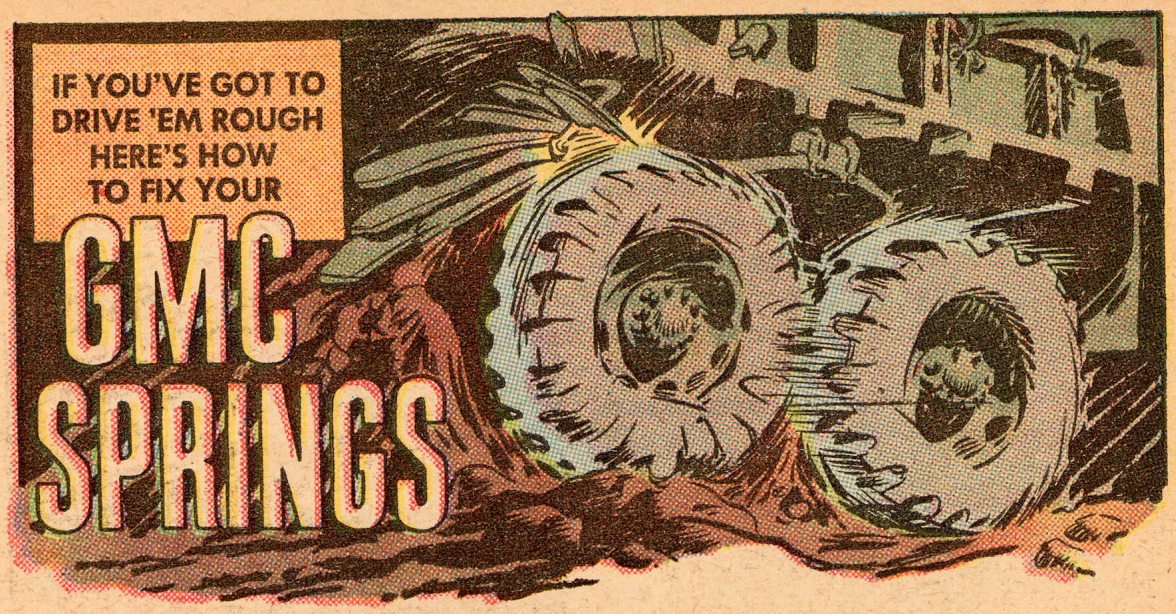
Ed. Note—That's a handy gadget, Sarge. And it can be used on both live and dead wires. But if you solder a live one, disconnect it before you solder, otherwise you can easily get a short circuit. Don't take insulation off the wire just to ground it. Attach the clip close to the part you're connecting where the insulation has to be removed anyhow. Or disconnect the wire you're soldering and ground it to the terminal. If there's no terminal, it's okay to unravel a bit of the insulation on the end of the wire. (Be sure to use a non-corrosive soldering paste. An acid solder will corrode electrical wire.)



WILL THE GUY WITH SOMETHING ELSE ON HIS MIND SPEAK UP. IF YOU GOT A BETTER WAY OF DOING YOUR JOB LET'S HEAR ABOUT IT . . . WE'LL REWARD YOU WITH A PERSONAL SUBSCRIPTION TO P. S. MAGAZINE . . . **FREE.**

IF YOU'VE GOT TO DRIVE 'EM ROUGH HERE'S HOW TO FIX YOUR

GMC SPRINGS



ONE of the biggest nuisances of the Korean affair, next to the North Koreans and the Chinese Commies, are busted truck springs. Once you get off the main boulevards, of which there ain't any to begin with, the roads mainly feature such unimprovements as rocks, ruts, holes and ditches. Add to this heavy and medium overloads on trucks, and speedy driving and the result is lots of broken springs.

But that's not the whole story; springs don't just up and decide to break. In many cases, it's neglect of something else in the suspension system that leads to broken springs. Like for instance worn or loose spring shackles, spring eyes, or worn bolts or pins where the spring is fastened to the frame hanger. The frame hanger itself may crack loose from the frame.

Any or all of these conditions let the spring flap around loosely, making the truck a sucker for a broken spring or at least increasing the chances that the next hole you hit will mean trouble in the suspension department.

You may look at the heavy spring assembly and find it hard to believe that such hardware could be described as "flapping around loosely," but next time you're riding abreast of a 2½ ton six by six, cast your glims at the suspension. You'll see what you thought were heavy rigid springs flapping like the wings of a bird.

There's a standard test you can make of the spring system which will help you catch trouble before it starts. All you need is a heavy iron bar, your good right eye and a little know-how which you will quickly get from experience. To test for looseness in the shackles, or wear in the bushings, bolts and what have you, stick the end of the bar under a frame side member with the bar resting on the spring close to the end. Work the spring up and down alternately pressing down and releasing the bar. Watch for vertical movement between the shackles and the spring. This is the tipoff to wear or looseness in the shackle. Some shackles have rubber bushings, don't mistake compression of the rubber for wear.

Now there are different kinds of shackles used on different kinds of trucks such as link shackles, U-type shackles, Y-type shackles and rubber-block shackles. The pictures on the next page show some of these, and the captions indicate what else to watch for in your iron-

bar test. For instance, in checking the single-piece link shackle, if you get any side play, tightening of the shackles is called for.

Notice also that these shackles are plentifully sprinkled with grease fittings. These are not just put on there for pretty. Keep after them with your grease gun and let the grease take the wear instead of the part.

SPRING REBOUND CLIPS

The spring rebound clips were put on the springs to keep the leaves from separating and breaking. If these have worked loose, trouble's coming. The clips must fit the spring snugly enough to prevent side movement or separation of the leaves, and still let the leaves slide on each other.

The clips are usually wrapped around and riveted to the spring leaves or they may be held together with a spacer, bolt, and nut. Examine the clips for looseness. If they are so loose that you can shake them with your finger, tighten like so:

If it's the wraparound type, support one side of the clip with a large hammer or bar serving as an anvil. With another hammer, bang lightly on the opposite side. When this side is tight against the spring, put your anvil on the other side of the clip and again beat lightly on the opposite side until it's snug against the spring.

If the clip is the spacer and bolt type, just tighten the nut until the clip is snug. Don't fracture yourself—too tight will retard the spring action.

Dear Editor,

We've had quite a few GMC springs break on the first, second, or third leaf. They generally break from 4" to 10" away from the center bolt.

We made a clamp out of two pieces of steel, ¼" thick, 1½" wide, and 5" long. We drilled the holes about 3" apart, so when we put the bolts in they would fit snug against the side of the spring. (see Fig.). Then we bolted them together. Of course, we jacked up the vehicle and fitted the broken ends of the spring together before we put on the clamp. This way, we were able to run our trucks when we had to.

There's also been some trouble with brakes locking on our GMC. We traced the trouble to a clogged-up master-cylinder-port hole.

Instead of tearing the master cylinder apart, we drained it with a suction gun. Then we got a piece of fine steel wire and put it down through the filler opening, worked it through the port hole, and cleaned it that way. It sure saved a lot of work.

S/Sgt. Anthony V. Polesnak
APO 758

Ed. Note—That clamp won't hold a broken spring together for long, so replace it when you can.

When you're pushing in that wire to clean a clogged master-cylinder-port hole, make sure the piston's fully released so you won't cut the piston cup. Better save it for really tough emergencies, too, since some dirt particles are pretty sure to work under the cup and cause leakage later.

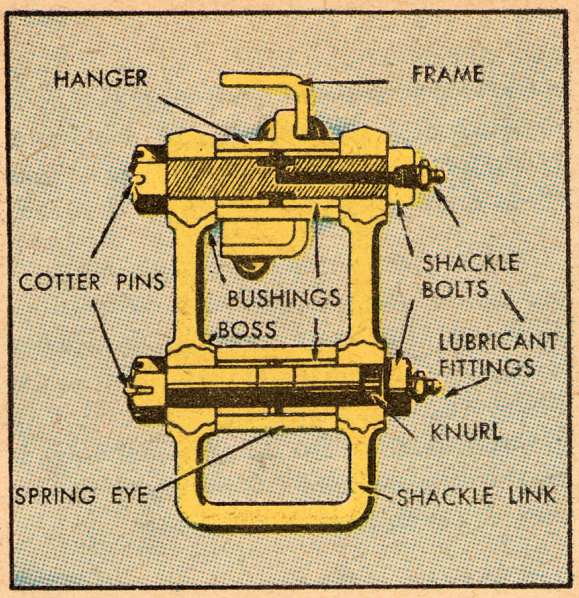


Fig. 1—The busted spring on your truck may have begun right here. Looseness in the spring shackle (single-piece link type above) gives the spring too much bounce to the ounce, leads the breakage. Test the shackle as detailed in our story.

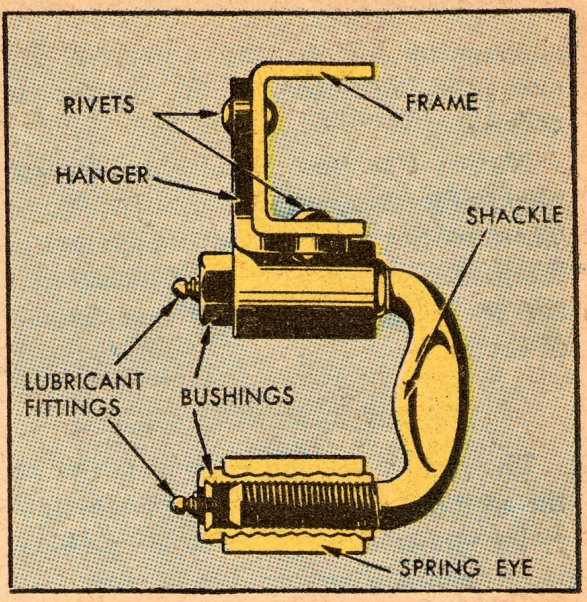


Fig. 2—The "U-type" spring shackle has hardened steel bushings liberally lubricated (by you) to take the wear. When the threaded bushings wear, they are easily replaced. The bar test for shackle looseness tells you when.

U-BOLTS

The job of the spring U-bolts is not only to tie the spring and the axle together but also to keep these parts in alinement, prevent broken spring leaves and shearing of the center bolt. Keep the U-bolt nuts tight. Watch also for stripped threads on the U-bolt which may also account for looseness.

CENTER BOLTS

The simple word is, keep 'em tight, make sure the bolts are not broken. Otherwise the spring leaves will be allowed to shift, break and spill all over the lot.

SPRING PINS OR BOLTS

Keep tight. Check and tighten the lock bolts which hold the pin in the hanger. Watch for wear in the bushings. Scrutinize the frame hanger. Make sure it's riveted or bolted tight to the frame.

See Fig. 3 for a quick field fix for a broken or lost spring pin.

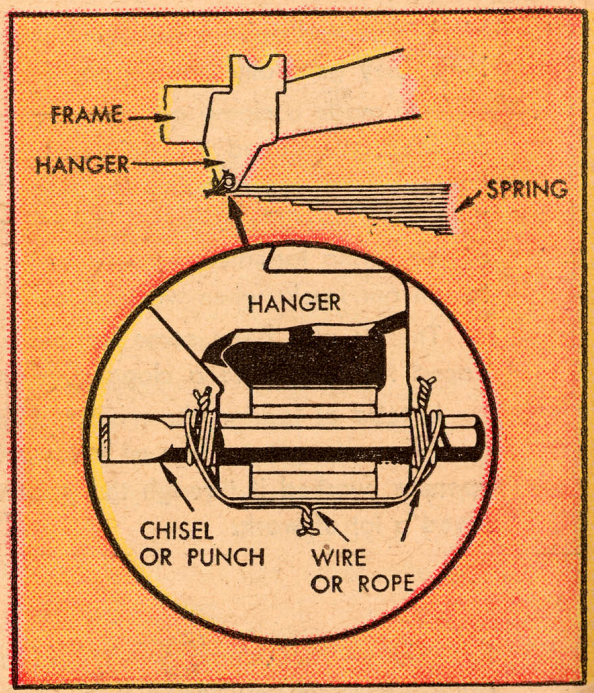
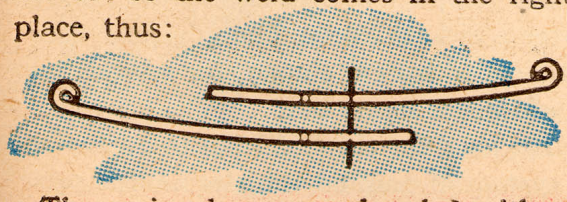


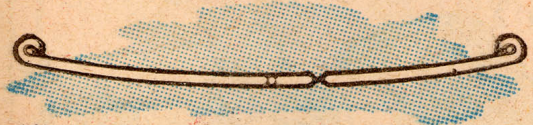
Fig. 3—Here's a quick field fix for a lost or busted spring bolt. If you don't have a bolt and nut, use a punch or a chisel of similar size. Jack up the vehicle to take the weight off the spring and line up the hole in the spring with the hole in the hanger. Install punch, or chisel, let the jack down, and wrap wire around to hold the new pin in place.

And from T/4 George B. Huhn comes this field fix for broken spring leaves: Recently we have experienced a good deal of trouble with broken front springs on GMC 6x6's. Not being able to obtain sufficient replacement caused me to resort to welding broken main leaves. To date the repaired leaves are giving good service – they are holding up as well as rebuilt springs made of original leaves.

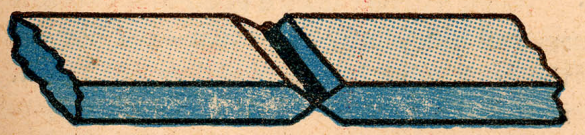
The welding procedure is as follows: The only practical place to weld them is as close to the center bolt or as near to the U-bolts as possible. If the leaf is broken outside this area, then two broken leaves are used to make one. The leaves are cut so the weld comes in the right place, thus:



The spring leaves are beveled with a double "V" on an emery wheel after being cut with an oxyacetylene torch, then lined up accurately, like this:



The welding is done with ½" stainless-steel 18-8 (18% chrome, 8%nickel) electrodes applied with the electric arc. The heat is kept as low as possible consistent with a good weld. The beads are applied thinly and one at a time (next Fig.). Enough time must be allowed between beads for the weld to cool completely, at least until you can hold it in your hand.

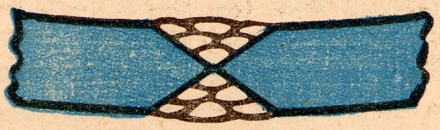


P. S.—When you're done, remember that spring U-bolts oughta be tightened when the truck is under normial load.

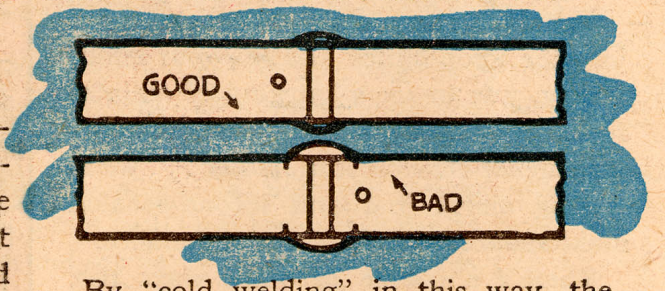
The next pass is applied opposite the first, and so on in this way:

Warping can be controlled by applying two beads on the outside of the warp before applying any on the inside. Again the beads should be allowed to cool separately and completely. This will straighten it out as shown in the next sketch.

Below: six beads will fill one side of the bevel, twelve for the whole weld as you see here. The surfaces are then ground flush.



Some reinforcement may be applied at the sides. However, extreme care must be used not to cause any checks or cracks at the ends of this reinforcement. Good and bad reinforcement look like this:



By "cold welding" in this way, the natural annealing effect and brittleness caused by arc welding high-carbon steel is minimized.

The stainless steel rod makes a very ductile weld and has all the tensile strength needed. This same procedure would work on most spring leaves and bicarbon-steel tools and parts.

Four to six hours may be allowed for the job. A dozen can be welded as fast as one because of the necessary cooling time.

Dear Motor Officer: I know you've been all through TM 21-300, you've waded ear deep in classification cards, and no doubt you've even got men driving your trucks.

Now, we'd like to ask, have you given any thought to the plain human being that pushed your brakes and clutches, the little sack of worries and fears that furnishes the brains of the big dumb truck and makes it go?

If not, and you'll climb down off your bars for a minute, we'd like to lend your ear.

If you're a real Motor Officer, you'll go into the Shop Truck and get your hands greasy, just to see what kind of maintenance your men are giving your vehicles. Not higher-echelon stuff, either . . . we're talking about first and second-echelon maintenance—preventive maintenance.

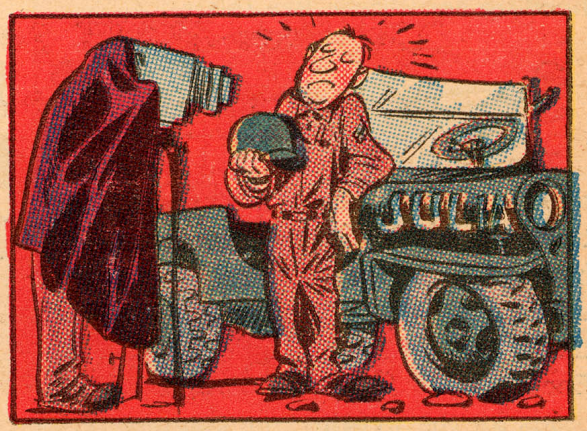
There's a couple of other ways too, among which are sentiment and money. It's a toss-up which comes first.

Pride of Ownership

It isn't hard to get sentimental over a piece of machinery when you're constantly with it. You know its strength and weakness, its good moods and bad. You've babied it through sub-zero winters, spring floods, and dusty summers. And it still takes you there and brings you back. Give your driver his truck and try to keep him on it. Let him give it a name.

Remember the jalopy you used to own when you were a hot-rod kid, and the name you gave it? We called ours Fanny after a girl we knew. The guy next door also called his car Fanny, for reasons we could never figure out.

It's legal for the Old Man to authorize a system of painted vehicles names, provided gasoline-solvent paint is used in marking them. And if it makes the boys love their vehicles, we're for it.



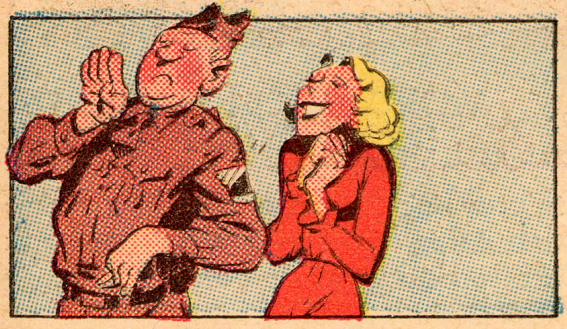
A Pat on the Pocketbook

When a driver does a good job, you can reward him in any of 3 ways—pat him on the back, give him a medal or get him a rating.

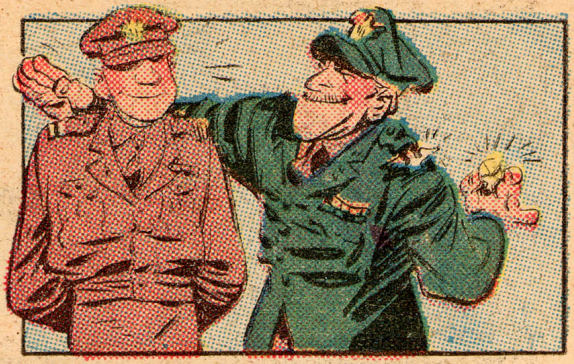
The first two are nice, but ratings talk. They touch a soft spot in your wallet. And we'd like to see deserving drivers get more of them.

Best part is, ratings are already authorized. Take a look at your T/O&E. If it's like most of them it lets you put stripes on the sleeves of every regularly assigned truck driver.

You earn these ratings, when you do your jobs right. It's tough to rassle a truck all day, fighting any kind of terrain and any kind of weather, and do all the preventive maintenance and emergency repairs needed to keep it running. Here's hoping you give out all you're entitled to.



For we believe, as you must, that first and second-echelon maintenance can kill a lot of third and fourth-echelon work. It can even solve the spare parts and manpower problems.



No need to hand you a lot of 'pap' about "keep 'em rolling". . . . you know what your job is. If you do it half-heartedly or not at all, the whole outfit will suffer.

If you do your job well—who knows? The Old Man might even make you a major!

P. S.—Obviously, the case for the mechanics is even stronger. Need we say more?

Now that it's cheaper to fix 'em

YOU CAN START SAVING USED BEARINGS

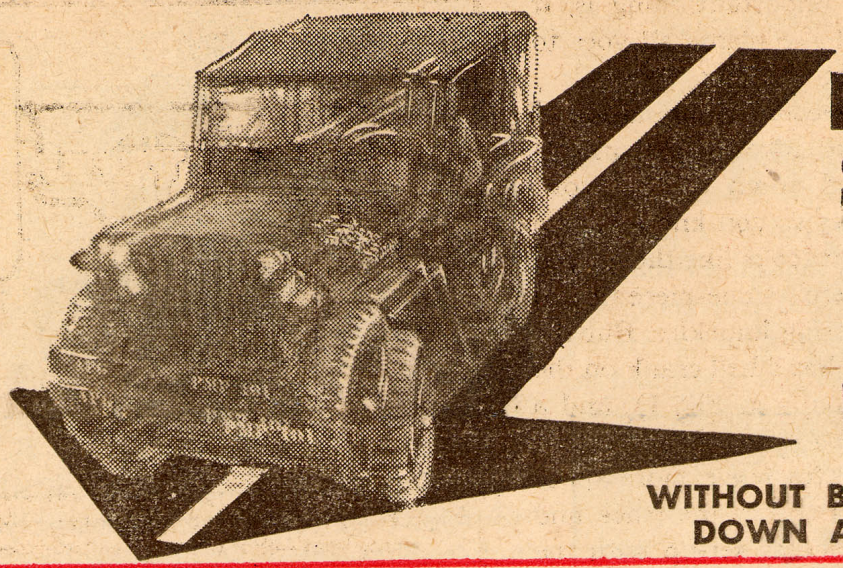
Nobody likes to throw away old bearings. Seems like there ought to be some good use for all that weight of fine steel and man-hours of machining. Well, there is.

Ordnance Corps Technical Instructions #360-7-50 now tells of a program to re-claim all unserviceable bearings that aren't cracked or too deeply rusted or worn. The new deal covers roller and needle as well as ball-bearings, and is already under way in some depots.

So from now on, come evening, instead of feeding them to the local rats that nibble your gobbage or salvage pile, you can stash your used bearings away for the Depot man in a pail or #10 can.

Like so:

1. Clean the whole assembly like you intend to use them again.
2. Stack them neatly in a discarded small pail. (Like a 25# grease can.)
3. Arrange some furniture around them to prevent shipping damage.
4. Cover well with engine preservative oil (2-126 Grade 2) and serve to the rear through the same channels that sent 'em.



HOW TO STOP A JEEP * IN A HURRY

WITHOUT BEING WHISKED DOWN A SIDE ROAD

Ordinarily, Bumblefoot's a pretty slow and droopy driver. One time he got in a spot. He had to stop fast or run over the captain. For a second there, Bumblefoot moved like a rocket. A foot flew out to the brake, mashed down the pedal, he hunched up and gripped the wheel hard, till finally the truck settled to a stop.

That's pretty much the way most of us make an emergency stop.

There are times though when stopping a ¼-ton jeep by that same system will give you a surprise. When you jam on the brake you'll feel the jeep dive to the left, like someone's underneath cutting the wheels on you. Nothing to get your intestines in an uproar about. It's just one of the facts of the jeep's driving life. The best thing a heads-up driver will do is stay cool, find out **why** it happens, and **how** he can control the pull to the left.

Here's the "how" part: just make your emergency stop the same with a jeep as you do on any other truck, except for **one** thing. **Don't freeze the steering wheel.** Let it have a little play. Still keep a firm grip, but hold your arms loose enough to give with the wheel a little, and to your right. Another thing, if you have time during the stop—pump the brake at least once, instead of giving it one long push all the way down.

Those two things sound easy. Don't fool yourself, they take a good driver. You've got to remember them when you're in a tight spot—when it's the most natural thing in the world to kick out at the brake and grip the wheel **hard.** You'll have to practice and keep the right way in mind, so that in a pinch you'll **automatically** relax your grip and pump the pedal.

It's a case of knowing your jeep, too. Some have the curse more than others, and some conditions make the pull more noticeable. We found the pull strong when the stop was made on a smooth hard road. The worst pull . . . a pull that nearly swerved the jeep into the left lane . . . happened when the brakes were applied going around a left curve. That's not surprising though, because putting on the brakes on a curve is Goof-off driver practice with any truck. Third gear—high or low range—brought the attraction to the left more than any other gear. But the pull is likely to happen on any road.

* **Meaning all jeeps before M38 series.**

in any gear. The important thing is, it **does** happen. And the blame all goes to the jeep steering set-up.

It's due to the peculiar combination of rods and arms that takes your turn-of-the-steering-wheel down to the front wheels. Most trucks as you know have a steering system that looks like the grayed parts in Fig. 1. There's a one-piece tie rod connecting the steering knuckles. But the jeep is different. It has a bell crank on the front axle (black parts in Fig. 1), and a two-piece tie rod up front. It's different for a good reason: to leave more space between the underparts of the truck and the ground. The regular set-up with the one-piece rod would hang down too low if it were used on the ¼-ton jeep. You'd tear off a piece of the rod everytime you drove across a stubbled field.

As the jeep rushes to a stop, something awful peculiar goes on with this steering. Wrap yourself around the front axle and watch.

The brake shoes take hold, the tires grip. Just then you'll feel yourself twist forward a few degrees. The braking action makes the axle twist forward a little. You'll see the bell crank dip forward and down, because it's mounted right on the axle. Watch it—that's where the pulling business all starts. As the crank twists forward, the end in the steering connecting rod tries to pull the rod forward. If the rod stands pat, you'll see the crank pivot and swing the tie rod and wheels to the left (Fig. 2). Finally the jeep stops —over in the left lane somewhere.

You can see now why it's wrong to clench the steering wheel when the jeep's coming to a stop. Giving the wheel a little play to the right loosens up the steering system. Then the steering connecting rod is free to move forward with the bell crank instead of standing pat and holding back the end of the crank. The rod moves forward and the crank doesn't pivot and the jeep rolls to a straight stop.

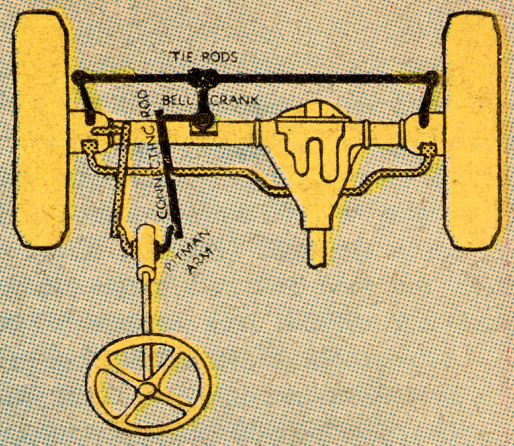


Fig. 1: Two steering systems on one drawing. Every truck has one or the other. Follow the gray lines—that's the conventional steering on most trucks. You can see how the jeep steering arrangement—in black—is different.

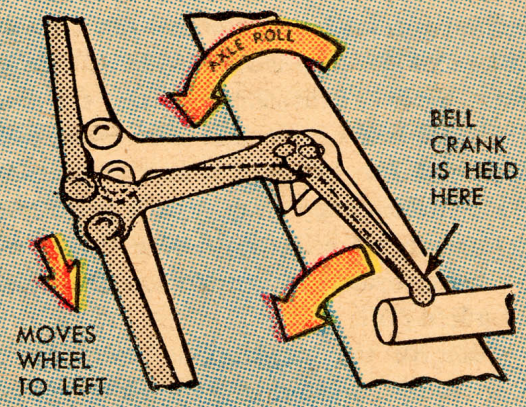


Fig. 2. Unless the steering wheel is allowed some play when you come to a hot stop, the bell crank goes into action—like we've shown in gray—and pivots the wheels to the left.

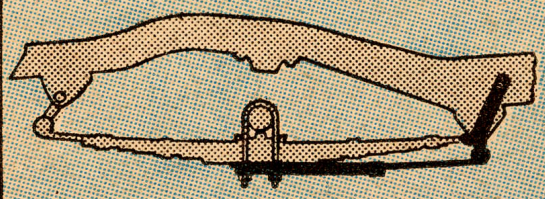
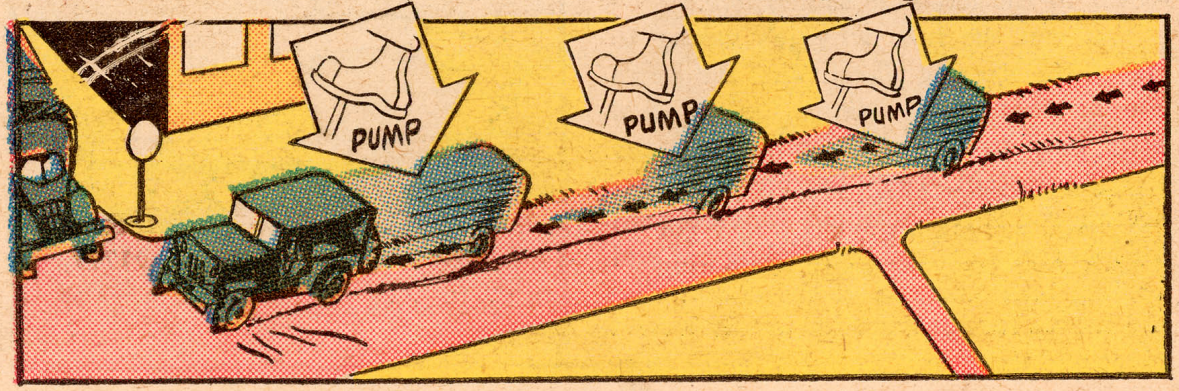


Fig. 3. All jeeps have this two-leaf Torque Reaction Spring tacked on the left front spring. Its job is to take some of the fighting roll out of the axle.

The Army didn't hang the responsibility for the job of controlling the pull entirely on the driver's head. About seven years ago the engineers popped up with a two-leaf spring arrangement to add on the left front spring. This Torque Reaction Spring was put on in production, and put on in the field (Fig. 3). It did cut down the axle roll and make the pull much less violent. But because it's still noticeable, some of the mechanical geniuses have been swamping us with magic fixes to make the pull vanish completely. One fella told us it was just a simple matter of reversing the brake shoes on the left front wheel. Another GI stopped dreaming of Mabel a few nights to dream up a way to take some of the pep out of the left front wheel cylinder. Then the cylinder would have a softer push on that side, and the jeep would stop in a straight line. We'll admit those things do make the pull less noticeable. But man, that's reducing the braking power of the jeep! In an emergency stop, you'll need **more space** to stop in. Any cure that futzes with the brakes is worse than the disease of a left-pull.

Not all the suggestions were off the ball. A few wanted to go back to the regular truck steering with a single tie rod, take the bell crank off the axle and stick it some place on the frame. No question. That would cure the pull to the left. The Army's Ordnance engineers know it, manufacturer's engineers know it and even Half Mast knows this would do the trick. But there are two good and practical reasons why the step isn't being taken officially. First, any change would hang more iron under the jeep where there's not too much space now between the underpinnings. Second, any modification in the steering made in these early jeeps would be too costly in time and materials—hundreds of thousands of tons of modification-kit parts would be needed to modify all the jeeps that are dancing around the world. And it would take millions of mechanic-hours in the field and factory, making and putting on the fix. All this for what?

To correct a little distemper that happens only when the jeep is forced to make a hard fast stop? To correct a quirk good drivers notice only once in a while? No. That wouldn't be sensible. Instead of the impractical costly modification to all ¼-ton 4x4's, the Army's put the problem up to you. Mechanics—they're depending on you to give more attention to the Preventive Maintenance on jeep steering systems. Steering linkage that isn't adjusted can make the pull stronger, enough to smack your jeep hard to the left. Follow your vehicle TM and keep the steering in line and adjusted. Drivers —they're depending on you to know the pull is normal and nothing to get excited about. And, to learn the little trick of controlling it by relaxing your steering and pumping the brake during an emergency stop. The whole deal's in your hands. Your good grimy hands.



WRING OUT THE OLD AND SQUIRT IN THE NEW

ALL PURPOSE...ALL-WEATHER GREASE

THE NEWS

The news is almost too good to be true. Pretty soon now, you'll have only one kind of grease for all automotive and artillery bearings and bearing surfaces, except sealed bearings and water pumps. Fine instruments too, get special treatment, but that's another matter.

It's called GAA for Grease, Artillery & Automotive, and is a later development of your present OO (Double-O) grease. The Ordnance and Petroleum Industry cooks finally found the right makins' and whipped up a batter that won't run out at high temperatures and will also, as they say, ". . . maintain its lubricating performance characteristics . . ." at very low temperatures.

The QM is buying GAA right now from a number of different suppliers for issue to all organizations as present stocks of old-style grease are used up. The first shipments, of course, will go to OUTFITS OPERATING IN EXTREME CLIMATES.

THE ANGLES

What this means to you is that you'll have to reckon with only one kind of grease for all purposes, in all weather and climate conditions. Instead of lugging around five different cans, you'll lug one. Instead of ordering five different kinds of grease you'll order one. And instead of changing grease with the seasons and with each move to a different climate, you'll be able to slurp up the time you save over to Steve's Beer Emporium.

Best of all, you'll know what you've got in every grease gun! No more wondering what's coming out when you push the handle on whatever you pick up off the grease rack.

In order to save yourself aggravation there's a few things you got to keep in mind about any changeover as big as this new grease program.

Number One is, you shouldn't requisition the new stuff until you've used up what you've got on hand, and whether you do or not, the QM will issue all the old stuff he's got on hand too.

Then when the QM gets his stock of GAA, he'll supply it on all requisitions automatically whether you ask for GAA or not.

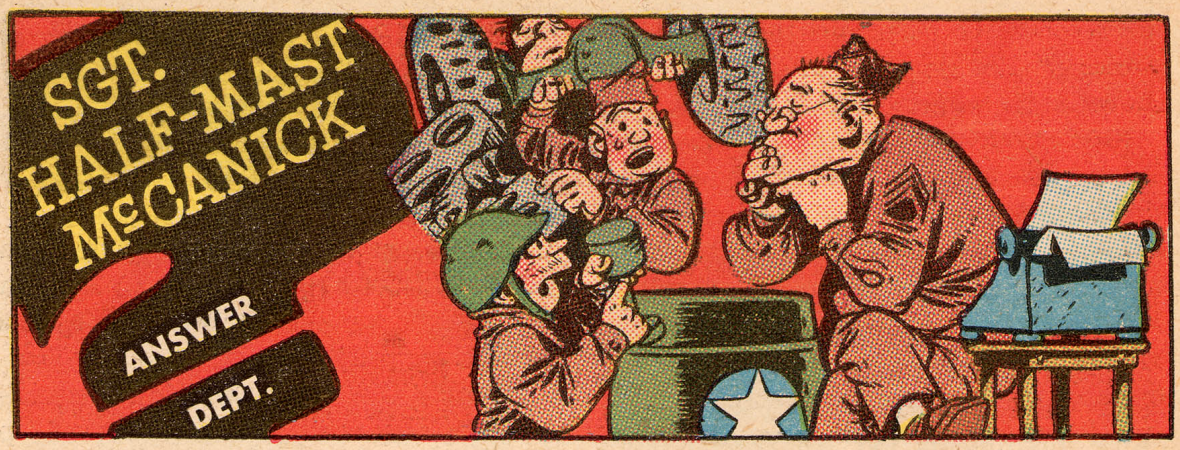
Item Two is, when you get GAA you needn't rush around changing over every truck in sight either. Unless, that is, the local air beats your ears at 32°F or below, or at the regular lube-order intervals.

And if you start asking for GAA after you've had some the first time, keep in mind that the **Depot** may not always have it . . . so for a while at least, until all old stocks everywhere are used up, it's a good idea to give a substitute spec that you can use until the QM can deliver what you want every time.

P.S. Spare parts that will be packed in GAA are marked: "Protected With Proper All-Temperature Grease." **Use them right out of the package without relubricating!**

(continued from page 13)

And somewhere out in supply channels there are about 500 replacement axles that need the same treatment. Front rears bear Stock Number G742-75-21734. Rear rears bear Stock Number G742-75-21727. They'll likely come out of Letterkenny or Anniston.



Dear Half-Mast,

This argument comes up every time we have a monthly check-up. It's about stoning or sanding the rotor to clean the contact end. I say the rotor gets shorter all the time even if only a few thousands at each sanding or stoning. The TM's don't give any special setting for the distance between the rotor and distributor cap, so my contention is to file the rotor good and clean and to use an old distributor cap with the part of the top cut out to measure the clearance. If the clearance is too big, the brass contact end of the rotor could be built up with solder or it could be hit lightly with a hammer while resting on a vise or something solid. I always set the distance between .018" and .020" and get very satisfactory results — smooth motor and good spark. It takes only a few minutes to check and may save a lot of trouble later. *Pfc. J. B.*

Dear Pfc.,

Your idea of cutting a discarded distributor cap to measure the distance between the contact end of the rotor and the sparkplug-wire contacts is solid. The gap setting of .018" to .020" is okay, too. But when your monthly check-up comes around, it'd be better to clean the contact end rather than file or stone it. Hitting it with a hammer to make up for the material lost in filing is pretty ticklish. If the end's too badly burnt and there's no new rotor in sight, building it up with solder will work but stick in a replacement as soon as you can. Half-Mast.

Dear Half-Mast,

We're having some electrical trouble with our trucks and believe it's in the regulator. We have a tester but are afraid of setting the regulator to where it will burn up. How about some information? Maybe it'll help some other troops, too. *Cpl. P. P.*

Dear Corporal,

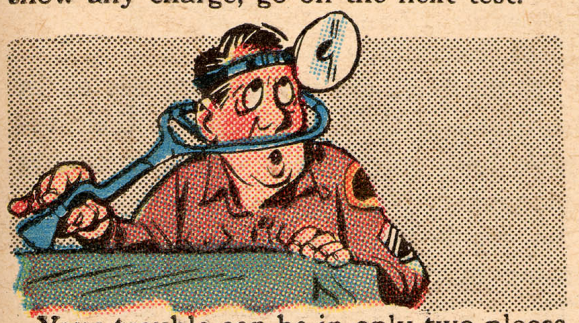
The voltage and current regulator sure have to be set accurately, like you say. Setting the current regulator too high will put an overload on the generator and may burn it out. Setting the voltage regulator too high will over-charge the battery and also cause a very high line-voltage, burning out lights and ignition points.

But sometimes what looks like regulator trouble ain't in the regulator at all. To track down the real cause, you can make a few simple tests that don't call for instruments — except your portable trouble-shootin' skull.

You can't make this test when your battery is in a fully-charged condition because the voltage regulator will cut down the charging rate too much. If that's the case, step on the starter for a

few seconds. To make sure the ammeter's working, turn on the lights to see if it shows a discharge.

First check the charging circuit—that is from the generator-armature connection to its connection on the regulator, from the battery connection on the regulator to the connection on the ammeter, and from the other ammeter connection to the starter-switch connection. Look for any loose connections and soldered joints broken loose, and check the condition of the wire. Also be sure all cables between the frame and engine are in good shape, if you've got rubber engine mountings. Start the engine and run it at about 1500 rpm. If the ammeter still doesn't show any charge, go on the next test.



Your trouble can be in only two places—either in the generator or in the regulator unit containing the cutout relay, the current regulator, and the voltage regulator. Test the generator next. Slow the engine to idling speed. Then use a test wire, connecting one clip to the armature connection on the generator and one to the field connection on the generator. **Slowly** increase the speed of the engine. If the ammeter now shows a charge, you'll know the generator's okay. But if the ammeter still shows no charge, there's one more test to prove the trouble's in your generator. Remove the armature wire, field wire, and regulator wire from the regulator and connect them together. When making this test, leave the test wires on the generator connections—this cuts the cutout relay out of the circuit. Now if the ammeter still shows no charge, you can be damn sure the generator is your troublemaker.

However, when you put one clip on the armature connection of the generator and one on the field connection of the generator, if the ammeter registers a strong charge—that proves there's something wrong in one of the regulator units.

Half-Mast.

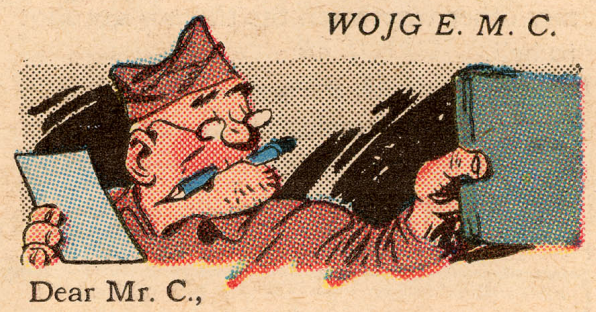
Dear Half-Mast,

Has Ordnance ever put out an SNL or organizational spare parts for Truck, tractor, 5-6 ton, 4x4, C.O.E., Autocar U-8144-T? We have 53 of the darn things and don't know what to stock in 2nd echelon to be safe from our friends the Inspectors.

Is there a modification on the air-compressor bracket on Hercules RXC engines? The brackets have a habit of working loose on this model and the oil consumption hits an all-time record.

One last question and I will sign off. How about the exhaust-valve clearance on the Mack NJU-1 tractor truck, 1941? The maintenance manual calls for .024 to .027 when cold. We have tried this and from the noises in the cylinder head, that valve is trying to pound its way out and striking the top of the cylinder head.

WOJG E. M. C.



Dear Mr. C.,

The publication you need for the 5-6 ton, 4x4, Autocar is the OSPE section of SNL G-511 (17 Jun. 44).

The capscrews on your Hercules air-compressor brackets shouldn't loosen up if you keep them properly tightened and lockwashered—but since you're having that trouble, you might anchor them by

drilling holes in the capscrew heads and wiring 'em. Like on aircraft engines.

About the exhaust-valve clearance—there's a new TB (ORD 205) that changes things for the better. The new clearance, when hot, is 0.022 to 0.024 inches.

Half-Mast

Dear Half-Mast,

I'd like a little advice on M4A3 Medium-Tank-Type suspensions.

No matter how tight we draw the stud bolts on the rear support-rollers, they shear or loosen so badly we have to put in new bolts after about 100 miles of operation. We can't retighten them because the threads are shot. Tried all Permatex compounds and even laced them tight with wire, but it didn't work.

We're stuck, Sarge.

Sgt. A. E. R.

Dear Sergeant,

My little advice is to do one of two things. When the support rollers have worked loose and damaged both the capscrew threads and threads in the hull: (1) Drill out the damaged threads and tap the hull for a larger-size stud. Or (2) drill all the way through the hull and install a bolt secured by a nut. There isn't any other way when the threads are shot to hell.

Like you said, Permatex wouldn't help much. The mounting studs on the roller should always be safety wired after they've been tightened.

Half-Mast

Dear Half-Mast,

What are your recommendations for the grade of oil in air cleaners? According to the boys who are getting gigged, the crews that are doing spot inspections say air cleaners are to have OE 50 in them and I don't see why. It's no hotter here in Hawaii than it was in the desert, and they raised hell with us for using OE 50 in California. Also, according to the TM's and recent orders that have not been cancelled, oil (either new or used) of the same grade as in the engine is to be used. I'll agree that the air cleaner that sets up high, like the GMC or the ½-ton Dodge, needs OE 50 because it won't splash out or all over, like the others.

S/Sgt. C. F. H.

Dear Sergeant,

If the boys are using the grade oil in air cleaners that's specified on their vehicle lube orders, they shouldn't oughta get gigged. Whatever oil they're using in the crankcase is what they should be using in the air cleaner, like you said. The LO's the last word, y'know—on lubrication, it's an order.

HALF-MAST

Men, why go to the chaplain with your motor problems? Write to me, Sgt. Half-Mast McCanick, P.S. Magazine, Aberdeen Proving Ground, Aberdeen, Md. I'll not only answer you, but I'll send you a personal subscription, FREE!

BETWEEN THE LINES

LETTER FROM KOREA

Dear Editor:

We've seen a lot of action up here since this thing started and I want to tell you that M24 light tank is a real powerhouse. I believe those two Cadillacs would take us up a perpendicular if we could get the traction. Only reason we had to abandon our tank after 700 continuous hours was because she broke her driveshaft. And I don't think that would have happened only the transmission-transfer came loose from the hull-mountings and caused a lot of vibration. We hopped a ride on another 24 and got our tactical air boys to put a rocket in our tank so the Commies couldn't get any spare parts. My crew hated to see her go because we sure loved that tank.

(Ed note: What Cpl. Lannassa is telling us, whether he knows it or not, is that if somebody in the outfit had tightened a few mounting-bolts at the end of a hundred hours or two-hundred hours of operation or even after six-hundred-ninety-nine hours of operation, the transmission-transfer would not have come loose from the hull, there would have been no vibration, the driveshaft would still be in one piece, and they wouldn't have had to blow their eighty-thousand-dollar tank to hell and evacuate under fire. They sure loved that tank allright—they just didn't know!)

Cpl. Hank Lannassa

P.S. When's the last time you tightened mounting-bolts?

THE NEW TRIP TICKET

IT'S REALLY MAN'S BEST FRIEND

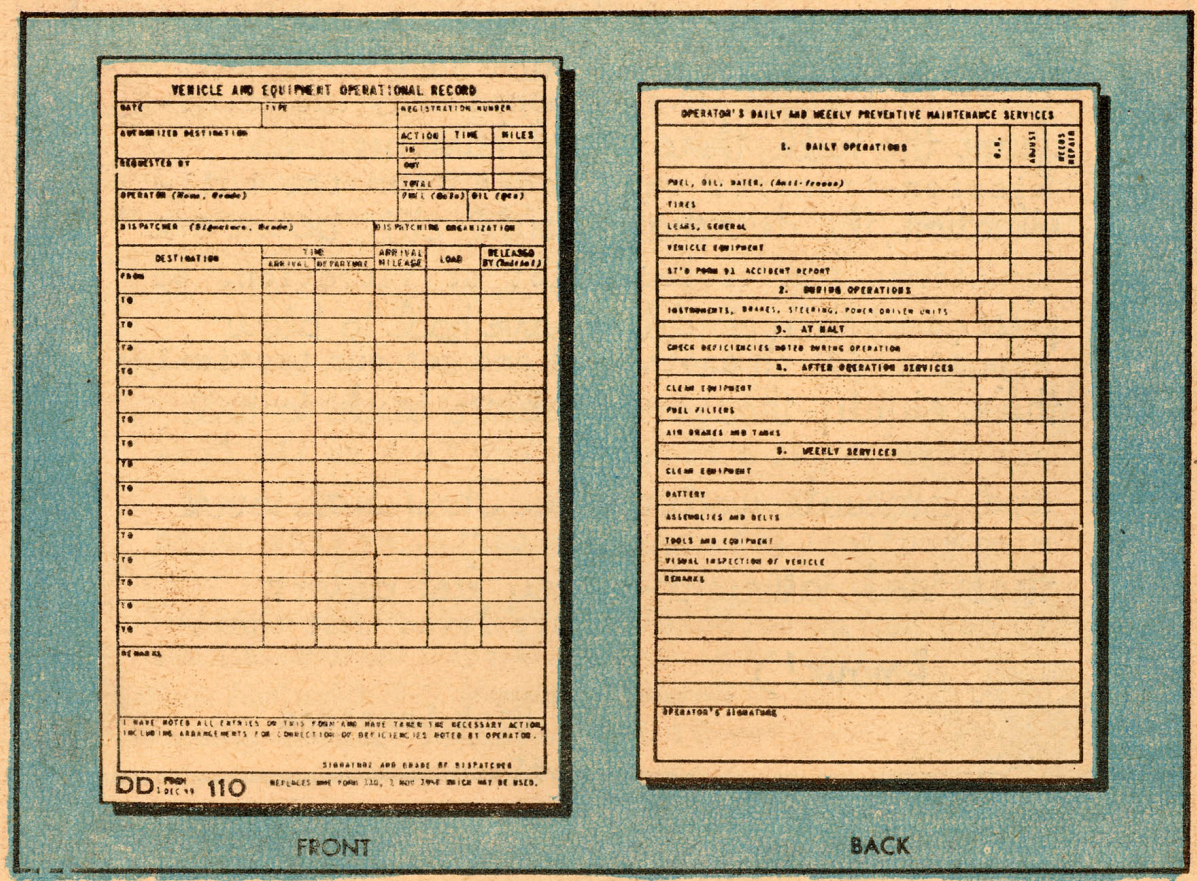
SERGEANT HALF-MAST came limping in from a field trip the other day with the sad report that not very many outfits use the Trip Ticket like it's meant to be used.

Some guys think that if their mission is tactical, they got a fine excuse to goof-off on the little paperwork that a Trip Ticket needs.

But in the words of ol' Half-Mast, "A smart operator would rather fill one out than argue with the motor sergeant over **who** said **what.**"

It not only shows your trip was necessary, but its backside is a man's best friend. Trip Tickets give all concerned a performance record of every mile and every aggravation. Then when the vehicle goes in for repair or service, the guy who does the work has a ready-reference list of all the aches & troubles you've had lo these many miles.

If you don't the things that bother you in everyday use may go unnoticed and unfixed. There's a lot of stuff that shows-up only over the long haul . . . like failures when it's real hot or freezin' cold . . . things they might not uncover in a routine inspection. Besides, you are a busy person. You get more important things like chow on your mind, naturally you might not remember to write them down



VEHICLE AND EQUIPMENT OPERATIONAL RECORD

DATE | TYPE | REGISTRATION NUMBER

AUTHORIZED DESTINATION | ACTION | TIME | MILES

REGISTERED BY | IN | OUT | TOTAL

OPERATOR (Name, Grade) | FUEL (Gals.) | OIL (Qts.)

DISPATCHER (Telephone, Grade) | DISPATCHING ORGANIZATION

DESTINATION	TIME ARRIVAL	TIME DEPARTURE	ARRIVAL MILEAGE	LOAD	RELEASED BY (Initials)
FROM					
TO					
TO					
TO					
TO					
TO					
TO					
TO					
TO					
TO					
TO					
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REMARKS

I HAVE NOTED ALL ENTRIES ON THIS FORM AND HAVE TAKEN THE NECESSARY ACTION, INCLUDING ARRANGEMENTS FOR CORRECTION OF DEFICIENCIES NOTED BY OPERATOR.

SIGNATURE AND GRADE OF DISPATCHER

DD FORM 1 DEC 49 110 REPLACES DA FORM 330, 1 NOV 1944 WHICH MAY BE USED.

FRONT

OPERATOR'S DAILY AND WEEKLY PREVENTIVE MAINTENANCE SERVICES

1. DAILY OPERATIONS	O.K.	ADJUST	NEEDS REPAIR
FUEL, OIL, WATER, (Anti-freeze)			
TIRES			
LEAKS, GENERAL			
VEHICLE EQUIPMENT			
ST'D FORM 91 ACCIDENT REPORT			
2. DURING OPERATIONS			
INSTRUMENTS, BRAKES, STEERING, POWER DRIVEN UNITS			
3. AT HALT			
CHECK DEFICIENCIES NOTED DURING OPERATION			
4. AFTER OPERATION SERVICES			
CLEAN EQUIPMENT			
FUEL FILTERS			
AIR BRAKES AND TANKS			
5. WEEKLY SERVICES			
CLEAN EQUIPMENT			
BATTERY			
ASSEMBLIES AND BELTS			
TOOLS AND EQUIPMENT			
VISUAL INSPECTION OF VEHICLE			

REMARKS

OPERATOR'S SIGNATURE

BACK

at inspection time.

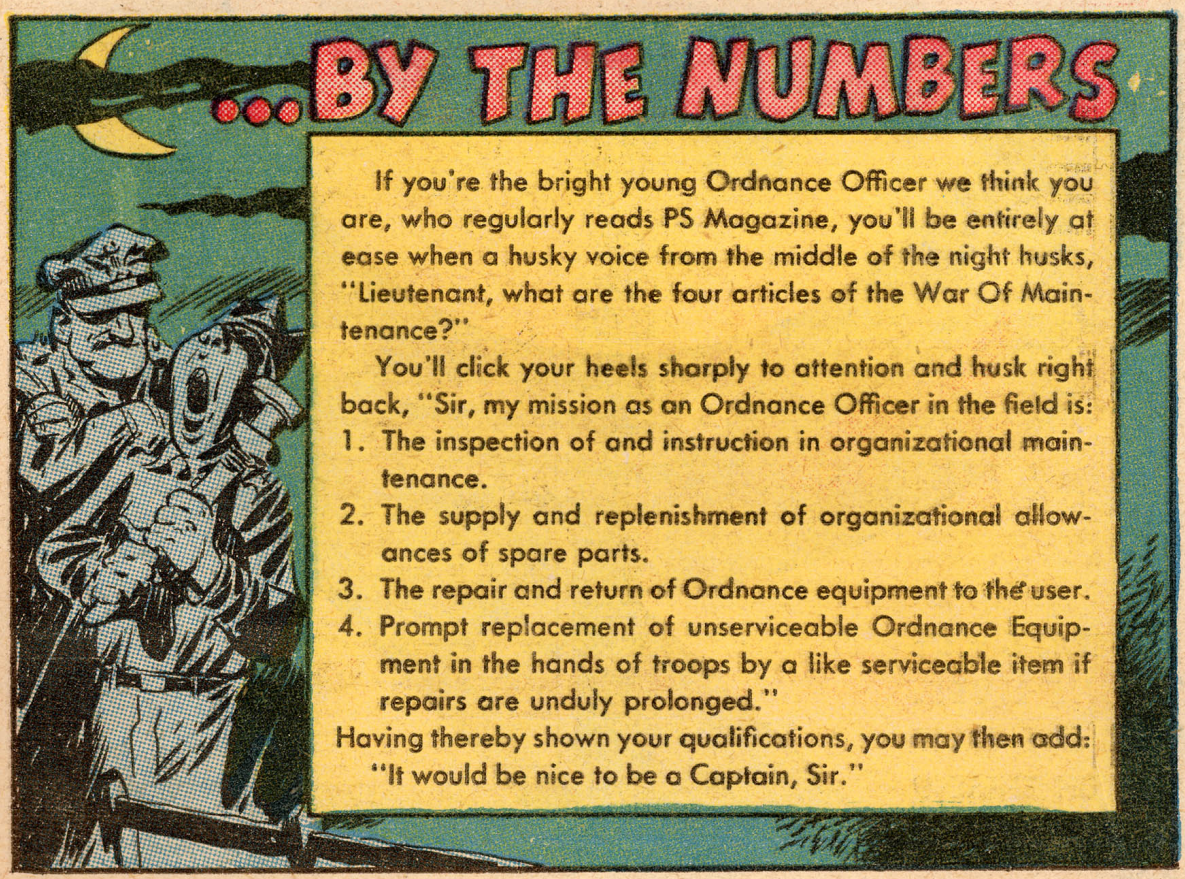
Say for example you got a threadbare winch cable. Well, Battalion can't stock wire rope, so when you go in for a "monthly" and ask for a new one . . . you are referred to the Chaplain. But if, when you first noticed it, you had said something about that winch-cable in the remarks section of the backside of a DD-110*, that new winch-cable would be on the shelf waiting for you.

Get the point?

*See box.

. . . AND SOME OLD TRIP TICKETS

What is generally called a Trip Ticket is officially known as a *Vehicle And Equipment Operational Record* and is still kicking around in several forms but with the same kinds of spaces for information. One is numbered NME-110, the new one is DD-110, and then there may be some old Form 48's still kicking around.



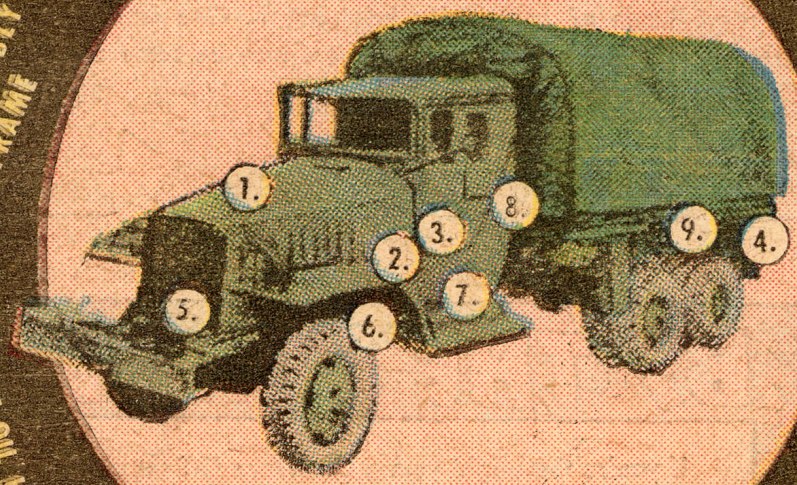
If you're the bright young Ordnance Officer we think you are, who regularly reads PS Magazine, you'll be entirely at ease when a husky voice from the middle of the night husks, "Lieutenant, what are the four articles of the War Of Maintenance?"

You'll click your heels sharply to attention and husk right back, "Sir, my mission as an Ordnance Officer in the field is:

1. The inspection of and instruction in organizational maintenance.
2. The supply and replenishment of organizational allowances of spare parts.
3. The repair and return of Ordnance equipment to the user.
4. Prompt replacement of unserviceable Ordnance Equipment in the hands of troops by a like serviceable item if repairs are unduly prolonged."

Having thereby shown your qualifications, you may then add: "It would be nice to be a Captain, Sir."

SOMEONE'S BEATIN' UP OUR GMC'S!



1. CHECK VALVE CLEARANCES: INTAKE .012, EXHAUST .016
2. ADJUST CLUTCH-PEDAL FREE TRAVEL (TO 2½")
3. KEEP FOOT OFF CLUTCH-PEDAL EXCEPT TO START, SHIFT, AND STOP
4. DON'T TOW WITH JUST A ROPE OR CHAIN; USE TOW BAR TO PREVENT FRONT-END DAMAGE TO TOWED VEHICLE
5. TIGHTEN RADIATOR HOLD-DOWN BOLTS
6. TIGHTEN TRANSFER CASE, TRANSMISSION & PILLOWBLOCK MOUNTING BOLTS
7. TIGHTEN CAB HOLD-DOWN BOLTS
8. CLEAN & RE-OIL HYV-DROVAC AIR CLEANER
9. TIGHTEN BOLTS THAT HOLD BOGIE ASSEMBLY TO FRAME

OUR 2½ TON 6 x 6's HAVE *NINE* LIVES. THEY WILL LIVE 'EM IF YOU WATCH THESE 9 BASIC CAUSES OF FAILURE.

DISTRIBUTION: A 5; AFF 3; ARM & SV BD 3; ARS 3; B 3; BASE COMD 3; BN 5; C 12; CHQ 3; D (ORD)—(3) EXC. TNG. DIV. 10; DEP 10; DISCIP BKS 10; DIST 3; DIV ENG 3; FC 3; GH 5; GH (LIBRARY) 15; MDW 3; OSD (ORD) 2; OS MAJ COMD 5; PE 3; R 3; ROTC STA 3; ROTC 3; S BN 3; SCH—(3) EXC. USMA 25; SCH (LIBRARY) 5; SEP C 5; SH 5; SH (LIBRARY) 15; TECH SV-3; (EXC. 9) 10.